

SECTION THREE

Affected Environment and Consequences

BLM considers critical elements of the human environment to fall into the following three categories:

- uses or resources that are not present and thus are not affected by the proposed action
- uses or resources that are present, but that are not affected by the proposed action
- uses or resources that are present and are affected by the proposed action.

Table 3-1 provides a correlation between BLM's list of critical elements of the human environment and the discussion of resources presented in this EA. Critical elements not present and not affected are not discussed in this EA. The sections that follow describe the affected environment and identify potential impacts for resources that are present and affected. The discussion is organized by link, followed by Section 3.7, which discusses cumulative impacts for the entire project (all links).

Table 3-1 Critical Elements for the Human Environment						
Critical Elements		Link 1	Link 2	Link 3	Link 4	Link 5
Air Quality	Status Section	● 3.1.10	● 3.2.10	● 3.3.10	● 3.4.10	● 3.5.10
Areas of Critical Environmental Concern	Status Section	○ 3.1.6	○ —	○ —	○ —	○ —
Cultural Resources	Status Section	● 3.1.4	● 3.2.4	● 3.3.4	● 3.4.4	● 3.5.4
Environmental Justice	Status Section	○ 3.1.8.3	○ 3.2.8.3	○ 3.3.8.3	○ 3.4.8.3	○ 3.5.8.3
Farm Lands (Prime or Unique)	Status Section	○ —	○ —	○ —	○ —	○ —
Flood Plains	Status Section	○ —	○ —	○ —	○ —	○ —
Native American Religious Concerns	Status Section	● 3.1.4.3	● 3.2.4.3	● 3.3.4.3	● 3.4.4.3	● 3.5.4.3
Noxious Weeds	Status Section	● 2.4.2.6	● 2.4.2.6	● 2.4.2.6	● 2.4.2.6	● 2.4.2.6
Threatened or Endangered Species	Status Section	● 3.1.1 / 3.1.2	● 3.2.1 / 3.2.2	● 3.3.1 / 3.3.2	● 3.4.1 / 3.4.2	● 3.5.1 / 3.5.2
Wastes, Hazardous or Solid	Status Section	○ —	○ —	○ —	○ 3.4.12	○ 3.5.10.2
Water Quality (Drinking/Ground)	Status Section	○ —	○ —	○ —	○ —	○ —
Wetland/Riparian Zones	Status Section	○ 3.1.1	○ 3.2.1	○ 3.3.1	○ 3.4.1	○ 3.5.1
Wild and Scenic Rivers	Status Section	○ —	○ —	○ —	○ —	○ —
Wilderness	Status Section	○ 3.1.7	○ 3.2.7	○ —	○ 3.4.7	○ —
Paleontology	Status Section	○ —	○ —	○ —	○ —	○ —
Not Present ○ Present and Not Affected ○ Present and Potentially Affected ●						
Critical elements based on Appendix 5 of the BLM Handbook H-1790-1 (US Bureau of Land Management).						

3.1 LINK ONE – LAMESA, TEXAS TO EL PASO, TEXAS

3.1.1 Vegetation – Link One

3.1.1.1 *Affected Environment*

The Link One project area is within both the Basin and Range and Great Plains physiographic provinces. The eastern half of Link One from Lamesa, Texas to the Pecos River in New Mexico crosses the Llano Estacado and the Lower Pecos Valley Section of the Great Plains Province. This area is generally characterized by a nearly flat to undulating surface with a slight southeastward gradient. The soils are generally sandy consisting of aeolian and alluvial deposits. A number of alkali sinks and caliche caprock escarpments occur near the Pecos Valley Section of the province. The western half of Link One occurs within the Mexican Highlands portion of the Basin and Range Province, which is characterized by block-faulted mountains separated by basin depressions (Williams, 1986).

Link One passes through portions of the Great Plains, Chihuahuan Desert, and intervening highlands. The plant communities within these areas include Plains-Mesa Grassland, Plains-Mesa Sand Scrub, Desert Grassland, Chihuahuan Desert Scrub, Coniferous and Mixed Woodland, Closed Basin-Playa-Alkali Sink, Floodplain-Plains Riparian, Gypsum Bedrock Community (Dick-Peddie, 1993), Agricultural-Rural Residential Disclimax Vegetation, and Urban habitats dominated principally by planted or exotic plant species. The grassland, shrubland, and alkali sink communities that occur in the Link One project area are found primarily in the lowland habitats east of the Pecos River and in the basins between El Paso and the Guadalupe Mountains of Texas. The Floodplain Riparian communities found within the Link One project area occur within the Pecos Valley of New Mexico. The Coniferous and Mixed Woodland communities are restricted to the higher elevations of the Link One project area along the base of the Guadalupe Mountains in Culberson County, Texas. The endemic Gypsum Bedrock Community occurs within the portion of the Link One project area from Whites City, New Mexico to the Texas/New Mexico border. With the exception of riparian areas in the Pecos River Valley and the Coniferous and Mixed Woodland of the Guadalupe Mountains, continuous canopy closure within the Link One project area is nonexistent and groundcover is intermittent with significant areas of exposed ground, open grasslands, and diffuse shrublands.

The AT&T corridor in which the proposed fiber optic cable would be placed, is a narrow 16.5 to 40.0 foot wide, previously disturbed ROW that traverses through and near these natural plant communities. Throughout most of the Link One project area the ROW is highly disturbed and dominated by disclimax species.

Plant Community/Habitat Descriptions

A reconnaissance survey was completed along the length of the Link One project area in April 2000 and a 100 percent groundcover pedestrian survey of all potential habitat for gypsum buckwheat was completed in mid-April 2000. The data gathered during these surveys, combined with vegetation mapping supplied by BLM, were utilized to characterize and define the approximate distribution of vegetation within the Link One project area. Table 3-2, below, provides brief descriptions of the habitat types in the Link One project area.

<p style="text-align: center;">Table 3-2 <i>Habitat Types of Project Area—Link One</i></p>	
Community	Description
Plains-Mesa Grassland	An arid land grassland community usually dominated by blue grama and other xerophytic grasses such as threeawn, tobosa grass, ring muhly, New Mexico feather grass, dropseed, and burro grass. Pockets of this habitat occur from the eastern end of the Link One project area near Lamesa, Texas westward into eastern New Mexico.
Agricultural-Rural Residential Disclimax Vegetation	A disclimax vegetation type including relictual pockets of native species intermixed with exotic, weedy, and agricultural species. Extensive tracts of agricultural lands occur within the Link One project area from Lamesa, Texas to Hobbs, New Mexico as well as within the Pecos River Valley of New Mexico.
Plains-Mesa Sand Scrub	A scrubland vegetation type found on sandy soils or dunes. All of these deep sandy habitats are dominated by sand-tolerant species, the most common and widespread of which are sand sage, shinners oak, honey mesquite, and four-wing saltbush. The Plains-Mesa Sand Scrub vegetation occurs in eastern Eddy County, New Mexico.
Desert Grassland	A transitional vegetation type usually forming an ecotone between Chihuahuan Desert and more mesic grassland or savanna communities. The dominant grass of Desert Grassland is black grama intermixed with mesquite or yucca. Sand dropseed is often common as well as spectacle pot and a number of other herbaceous species. Within the Link One project area, Desert Grassland is found on the benches above the Pecos River Valley southward to the Texas/New Mexico border. It is also abundant in the closed basins between El Paso and the Guadalupe Mountains of Texas.
Chihuahuan Desert Scrub	An arid land scrub brush community dominated by species such as creosote bush, tarbush, whitethorn, and honey mesquite that often occurs on calcareous, shallow soils. This vegetation type occurs throughout the Link One project area portions along the Pecos River Valley as well as along the edges of the closed basins between El Paso and the Guadalupe Mountains of Texas.
Closed Basin Playa-Alkali Sink	Closed Basin Alkali Riparian vegetation type is found along internally drained basins. The most common species expected in the saline habitats include iodinebush, black seepweed, four-wing saltbush, saltcedar, and alkali sacaton. Within the Link One project area, Closed Basin-Playa-Alkali Sink vegetation occurs around Lake Gatuna in the western half of Lea County, New Mexico and in the Alkali Lakes region in Hudspeth County, Texas just west of the Guadalupe Mountains.
Floodplain-Plains Riparian	This vegetation type consists of riparian trees that form closed or partially closed canopies or dense stands of phreatophytic shrubs typically found on meandering river systems or large drainages in the plains of eastern New Mexico and western Texas. Within the Link One project area, this habitat type is restricted to the Pecos River drainage in Eddy County, New Mexico and several large drainages in Texas.
Gypsum Bedrock Community	The Gypsum Bedrock Community is a very narrowly distributed aggregation of gypsophytic plants such as hairy crinklemat (<i>Tiquilia hispidissima</i>), gypsum gumweed (<i>Grindelia spp.</i>), and White Sands fanmustard (<i>Nerisyrenia linearifolia</i>). The Gypsum Bedrock Community within the Link One project area is restricted to a narrow band of habitat approximately 8 miles long located between White's City, New Mexico southward to the Texas/New Mexico border.
Coniferous and Mixed Woodland	This vegetation type is dominated by small trees, shrubs, and arid land grasses including junipers intermixed with grasses such as sideoats grama, blue grama needlegrass, and threeawn grass. Within the Link One project area, this vegetation type is restricted to the southeastern base of the Guadalupe Mountains in Culberson County, Texas.
Urban	City areas dominated by commercial, urban, and intense residential development.

Threatened and Endangered Plant Species

Special status plant species are summarized in Table 3-3 according to their status and occurrence.

Table 3-3 <i>Plant Species of Concern—Link One</i>			
Common Name	Scientific Name	Status	Occurrence Concern
Gypsum wild-buckwheat	<i>Eriogonum gypsophilum</i>	Endangered	Gypsum deposits in Eddy County, New Mexico
Puzzle sunflower	<i>Helianthus paradoxus</i>	Threatened	Alkali and Saline Riparian Areas and Springs in Eddy County, New Mexico
Guadalupe fescue	<i>Festuca ligulata</i>	Candidate	Guadalupe Mountains in Culberson County, Texas.

Gypsum Wild-Buckwheat (Eriogonum gypsophilum)

This federally protected plant is known to occur in Eddy County, New Mexico. Gypsum buckwheat is a perennial species endemic to gypsum. The project alignment passes through approximately 11 miles of potential habitat for gypsum wild-buckwheat in the Yeso Hills between Whites City, New Mexico southward to the Texas/New Mexico Border. A detailed survey of all potential habitat for gypsum wild-buckwheat within and adjacent to the project ROW was completed in April 2000. Although there was suitable gypsum wild buckwheat habitat within the area, gypsum wild-buckwheat was not present within or adjacent to the proposed project ROW.

Puzzle Sunflower (Helianthus paradoxus)

The federally protected puzzle sunflower is endemic to wetland or near wetland habitats usually in association with alkaline springs or riparian systems. The species is known to occur along the Pecos River at Bitter Lakes NWR and near Dexter Fish Hatchery north of the Link One project area in Eddy County, New Mexico. This species could occur in wetland habitats along the edge of the Pecos River portion of the Link One project area. Puzzle sunflower species flower in late summer and was not identifiable during the spring surveys of the Link One project area.

Guadalupe Fescue (Festuca ligulata)

The Guadalupe fescue is a candidate for federal protection under the Endangered Species Act. This tufted perennial grass occurs in high elevation habitats in the Guadalupe Mountains of Culberson County, Texas. The proposed ROW passes along the southern base of the Guadalupe Mountains in Guadalupe Mountains National Park, but in areas lower in elevation and drier than that preferred by Guadalupe fescue. Consequently, the proposed installation of the fiber optic line would have no effect upon Guadalupe fescue or its habitat.

Vascular Plant Species Observed

Based on the diversity of habitats, life zones, and vegetation types, as many as 400 to 500 vascular plant species could potentially occur within the Link One project area length. Appendix G-1 provides a table of vascular plant species observed within the surveyed portions of Link One.

3.1.1.2 Impacts on Vegetation

Although plant communities through which the corridor traverses include undisturbed natural communities, the proposed impact area (the proposed ROW) is a continuously disturbed corridor that is in many cases limited to the access road width plus 2 to 4 feet on one side. With the exception of the riparian zone along the

Pecos River and the gypsum habitats in southern Eddy County, the majority of the habitats and plant communities within the Link One project area are common and widespread. Impacts on the riparian zone along the Pecos River would be avoided by use of directional boring. A 100 percent coverage pedestrian survey of the gypsum habitats revealed that more than half of the existing ROW through the gypsum is heavily disturbed and it is not anticipated that the Proposed Action would significantly affect previously undisturbed gypsum habitat. In order to further minimize impact on native vegetation all construction activities and surface disturbance would be confined to the existing ROW, or paved or designated dirt roads in the Link One project area. There would be no off-road vehicle activity except in predesignated areas.

A summary of habitat types crossed by the project route is presented in Table 3-4.

Table 3-4 <i>Summary of Habitat Types Crossed/Adjacent to Proposed Route—Link One</i>		
Habitat Type	Length in Miles	Percent of Project Route
Plains-Mesa Grassland	38.2	12.4
Agricultural-Rural Residential Disclimax Vegetation	66.1	21.6
Plains-Mesa Sand Scrub	52.7	17.2
Desert Grassland	55.8	18.2
Chihuahuan Desert Scrub	61.4	20.0
Closed Basin Playa-Alkali Sink	8.5	2.7
Floodplain-Plains Riparian	0.1	<1
Gypsum Bedrock Community	11.2	3.6
Coniferous and Mixed Woodland	5.1	1.6
Urban	7	2.2
Total	306 Miles	100

No federal threatened, endangered, proposed threatened or endangered, or candidate plant species (Table 3-3) were found within the surveyed portions of the ROW. A 100 percent coverage pedestrian survey examined all gypsum wild-buckwheat habitats in the Link One project area. Although Guadalupe fescue is known to occur in habitats near the project area, there was no suitable habitat for this species within the ROW. Puzzle sunflower potentially could occur within the hydric zone along the Pecos River edge, but was not identifiable in the early spring. However, with implementation of directional boring along the Pecos River, any potential impacts on the puzzle sunflower or its habitat would be avoided.

3.1.2 Wildlife – Link One

3.1.2.1 Affected Environment

Wildlife Species Observed and Expected

Sixty-six species of vertebrate animals were encountered within the Link One project area during the April reconnaissance survey and limited pedestrian survey. This included 51 bird species, 12 mammal species, and three reptile species. Appendix G-2 is a list of the vertebrate animal species observed along the Link One project area.

The following is a breakdown of the common wildlife species found within each major natural vegetation type encountered within the Link One project area. A description of the vegetation type is included in the vegetation section for Link One.

Plains-Mesa Grassland

Amphibians and Reptiles. Amphibians and reptiles typically associated with Plains-Mesa Grassland habitat in the Link One project area and geographically known from the immediate vicinity of the proposed project area include: tiger salamander (*Ambystoma tigrinum*), plains spadefoot (*Spea bombifrons*), New Mexico spadefoot (*Spea multiplicata*), Woodhouse's toad (*Bufo woodhousii*), ornate box turtle (*Terrapene ornata*), collared lizard (*Crotaphytus collaris*), lesser earless lizard (*Holbrookia maculata*), Texas horned lizard (*Phrynosoma cornutum*), prairie lizard (*Sceloporus undulatus*), Chihuahuan spotted whiptail (*Cnemidophorus exsanguis*), little striped whiptail (*Cnemidophorus inornatus*), Great Plains skink (*Eumeces obsoletus*), glossy snake (*Arizona elegans*), western hognose snake (*Heterodon nasicus*), night snake (*Hypsiglena torquata*), coachwhip (*Masticophis flagellum*), bull (gopher) snake (*Pituophis melanoleucus*), western diamondback rattlesnake (*Crotalus atrox*), and western rattlesnake (*Crotalus viridis*) (Degenhardt, et al., 1996).

Birds. Birds typically associated with Plains-Mesa Grassland in the general project area include: red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo Swainsoni*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), horned lark (*Eremophila alpestris*), turkey vulture (*Cathartes aura*), mourning dove (*Zenaida macroura*), Chihuahuan raven (*Corvus cryptoleucus*), roadrunner (*Geococcyx californianus*), black-throated sparrow (*Amphispiza bilineata*), house finch (*Carpodacus mexicanus*), lark sparrow (*Chondestes grammacus*), northern mockingbird (*Mimus polyglottos*), cliff swallow (*Hirundo pyrrhonota*), Brewer's blackbird (*Euphagus cyanocephalus*), brown-headed cowbird (*Molothrus ater*), great-tailed grackle (*Quiscalus mexicanus*), western meadowlark (*Sturnella neglecta*), loggerhead shrike (*Lanius ludovicianus*), burrowing owl (*Athene cunicularia*), Say's phoebe (*Sayornis saya*), and western kingbird (*Tyrannus verticalis*) (Zimmerman, et al., 1992; Brown 1982).

Mammals. Mammals typically associated with Plains-Mesa Grassland habitat in the general project area include: desert cottontail (*Sylvilagus auduboni*), black-tailed jack rabbit (*Lepus californicus*), spotted ground squirrel (*Spermophilus spilosoma*), black-tailed prairie dog (*Cynomys ludovicianus arizonensis*), Botta's pocket gopher (*Thomomys bottae*), plains pocket gopher (*Geomys bursarius*), silky pocket mouse (*Perognathus flavus*), Ord's kangaroo rat (*Dipodomys ordii*), banner-tailed kangaroo rat (*Dipodomys spectabilis*), Merriam's kangaroo rat (*Dipodomys merriami*), plains harvest mouse (*Reithrodontomys montanus*), western harvest mouse (*Reithrodontomys megalotis*), deer mouse (*Peromyscus maniculatus*), white-footed mouse (*Peromyscus leucopus*), northern grasshopper mouse (*Onychomys leucogaster*), southern plains woodrat (*Neotoma micropus*), white-throated woodrat (*Neotoma albigula*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), striped skunk (*Mephitis mephitis*), bobcat (*Lynx rufus*), mule deer (*Odocoileus hemionus*), badger (*Taxidea taxus*), and pronghorn antelope (*Antilocapra americana*) (Findley, et al., 1976).

Plains-Mesa Sand Scrub

Amphibians and Reptiles. The following amphibians and reptiles are typically associated with Plains-Mesa Sand Scrub habitat in the general project area: tiger salamander, New Mexico spadefoot, Woodhouse's toad, lesser earless lizard, side-blotched lizard (*Uta stansburiana*), Texas horned lizard, prairie lizard, western whiptail (*Cnemidophorus tigris*), Great Plains skink, glossy snake, coachwhip, bull (gopher) snake, western diamondback rattlesnake, and western rattlesnake (Degenhardt, et al., 1996).

Birds. A large number of birds frequent the Plains-Mesa Sand Scrub habitat. Birds typically associated with this habitat type in the general project area include: red-tailed hawk, Swainson's hawk, northern harrier, American kestrel, horned lark, turkey vulture, mourning dove, Chihuahuan raven, roadrunner, black-throated sparrow, house finch, lark sparrow, cliff swallow, scaled quail (*Callipepla squamata*), Brewer's blackbird, northern mockingbird, brown-headed cowbird, cactus wren (*Campylorhynchus brunneicapillus*), western meadowlark, loggerhead shrike, scissor-tailed flycatcher (*Tyrannus forficatus*), and Say's phoebe (Ligon, 1961).

Mammals. Mammals typically associated with this habitat in the general project area include: desert cottontail, black-tailed jack rabbit, spotted ground squirrel, black-tailed prairie dog, Botta's pocket gopher, plains pocket gopher, silky pocket mouse, Ord's kangaroo rat, banner-tailed kangaroo rat, Merriam's kangaroo rat, plains harvest mouse, western harvest mouse, white-footed mouse, northern grasshopper mouse, southern plains woodrat, porcupine (*Erethizon dorsatum*), white-throated woodrat, coyote, gray fox, badger, striped skunk, and mule deer (Findley, et al., 1975).

Desert Grassland

Amphibians and Reptiles. Amphibians and reptiles typically associated with Desert Grassland habitat in the general project area include: short-horned lizard, tree lizard (*Uta ornatus*), New Mexico whiptail (*C. neomexicanus*), plateau striped whiptail (*Cnemidophorus velox*), smooth green snake, striped whipsnake (*Masticophis taeniatus*), mountain patchnose snake (*Salvadora grahamiae*), black-necked garter snake, western terrestrial garter snake, lined snake, and black-tailed rattlesnake (*Cratalus molossus*) (Degenhardt, et al., 1996).

Birds. Birds typically associated with Desert Grassland habitat in the general project area include: red-tailed hawk, Swainson's hawk, northern harrier, American kestrel, horned lark, turkey vulture, mourning dove, Chihuahuan raven, roadrunner, black-throated sparrow, house finch, lark sparrow, scaled quail, northern mockingbird, brown-headed cowbird, great-tailed grackle, western meadowlark, loggerhead shrike, burrowing owl, Say's phoebe, and western kingbird (Zimmerman, et al., 1992; Brown, 1982).

Mammals. Mammals typically associated with Desert Grassland in the general project area include: cave myotis (*Myotis velifer*), pallid bat, desert cottontail, black-tailed jack rabbit, Mexican ground squirrel (*Spermophilus mexicanus*), spotted ground squirrel, black-tailed prairie dog, plains pocket gopher, yellow-faced pocket gopher (*Pappogeomys castanops*), silky pocket mouse, plains pocket mouse, hispid pocket mouse (*Perognathus hispidus*), Ord's kangaroo rat, banner-tailed kangaroo rat, Merriam's kangaroo rat, plains harvest mouse, western harvest mouse, deer mouse, white-footed mouse, brush mouse, northern grasshopper mouse, cotton rat (*Sigmodon hispidus*), southern plains woodrat, white-throated woodrat, coyote, gray fox, long-tailed weasel (*Mustela frenata*), badger, striped skunk, bobcat, mule deer, and pronghorn antelope.

Chihuahuan Desert Scrub

Amphibians and Reptiles. Amphibians and reptiles typically associated with Chihuahuan Desert Scrub habitat in the general project area include: Couch's spadefoot (*Scaphiopus couchii*), western rattlesnake, western diamondback, bull snake, coachwhip, western whiptail, leopard lizard (*Gambelia wislizenii*), Texas horned lizard, desert spiny lizard (*Sceloporus magister*), and side-blotched lizard (Degenhardt, et al., 1996).

Birds. Birds typically associated with Chihuahuan Desert Scrub in the general project area include: red-tailed hawk, Swainson's hawk, northern harrier, American kestrel, horned lark, turkey vulture, mourning dove, Chihuahuan raven, roadrunner, black-throated sparrow, house finch, lark sparrow, northern mockingbird, brown-headed cowbird, great-tailed grackle, cactus wren, western meadowlark, loggerhead shrike, burrowing owl, scissortail flycatcher, Say's phoebe, and western kingbird (Ligon, 1961).

Mammals. Mammals typically associated with Chihuahuan Desert Scrub habitat in the general project area include: cave myotis, pallid bat (*Antrozous pallidus*), desert cottontail, black-tailed jackrabbit, thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*), Mexican ground squirrel, spotted ground squirrel, silky pocket mouse, hispid pocket mouse, Ord's kangaroo rat, banner-tailed kangaroo rat, Merriam's kangaroo rat, plains harvest mouse, western harvest mouse, deer mouse, white-footed mouse, brush mouse (*Peromyscus boylii*), northern grasshopper mouse, cotton rat, southern plains woodrat, white-throated woodrat, porcupine, coyote, gray fox, badger, striped skunk, porcupine, and mule deer (Findley, et. al., 1975).

Closed Basin Playa-Alkali Sink

Amphibians and Reptiles. Reptile species expected in the upper portions of the Closed Basin Playa-Alkali Sink habitat include: western diamondback rattlesnake, checkered garter snake (*Thamnophis marcianus*), and western whiptail (Degenhardt, et al., 1996).

Birds. Birds typically associated with Closed Basin Playa-Alkali Sink within the general project area include: western sandpiper (*Ereunetes mauri*), least sandpiper (*Erolia minutilla*), Wilson's phalarope (*Phalaropus tricolor*), great horned owl (*Bubo virginianus*), ash-throated flycatcher (*Myiarchus cinerascens*), western kingbird, horned lark, northern mockingbird, Cassin's sparrow, black-throated sparrow, white-crowned sparrow (*Zonotrichia leucophrys*), turkey vulture, northern harrier, scaled quail, brown-headed cowbird, and northern (Bullock's) oriole (*Icterus galbula bullockii*) (West, 1994).

Mammals. Mammals typically expected or observed within Closed Basin Playa-Alkali Sink habitat in the general project include: desert cottontail, black-tailed jackrabbit, southern plains woodrat, white-throated woodrat, porcupine, coyote, bobcat, striped skunk, and mule deer.

Gypsum Bedrock Community

Amphibians and Reptiles. Amphibians and reptiles typically associated with Gypsum Bedrock habitat in the general project area include collared lizard, western diamondback rattlesnake, bullsnake, coachwhip, western whiptail, side-blotched lizard, and desert spiny lizard (Degenhardt, et al., 1996).

Birds. Birds that are anticipated or observed within the Gypsum Bedrock Community include: red-tailed hawk, Swainson's hawk, northern harrier, American kestrel, horned lark, turkey vulture, mourning dove, Chihuahuan raven, roadrunner, black-throated sparrow, western meadowlark, burrowing owl, Say's phoebe, and western kingbird (Ligon, 1961).

Mammals. Mammals typically associated with Gypsum Bedrock Community include: cave myotis, pallid bat, desert cottontail, black-tailed jackrabbit, thirteen-lined ground squirrel, southern plains woodrat, white-throated woodrat, badger, striped skunk, and mule deer.

Wildlife Species of Concern

Table 3-5 lists wildlife species of concern within the project area that were identified by federal resource agencies. Field assessments were performed in mid-April 2000.

Table 3-5 <i>Wildlife Species of Concern—Link One</i>			
Common Name	Scientific Name	Status	Occurrence Concern
Northern Aplomado falcon	<i>Falco femoralis septentrionalis</i>	Endangered	Hudspeth County, Texas
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered	Eddy County, New Mexico
Interior least tern	<i>Sterna antillarum anthalassos</i>	Endangered	Eddy County, New Mexico/ Culberson and Hudspeth counties, Texas
Black-footed ferret	<i>Mustela nigripes</i>	Endangered	New Mexico and Texas
Pecos bluntnose shiner	<i>Notropis simus pecosensis</i>	Threatened	Eddy County, New Mexico
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened (Proposed for Delisting)	Eddy County, New Mexico
Pecos pupfish	<i>Cyprinodon pecosensis</i>	Proposed Endangered	Eddy County, New Mexico
Mountain plover	<i>Charadrius montanus</i>	Proposed Threatened	Eddy and Lea counties, New Mexico/ Culberson and Hudspeth counties, Texas
Lesser prairie chicken	<i>Tympanuchus pallidicinctus</i>	Candidate	Eddy and Lea counties, New Mexico
Swift fox	<i>Vulpes velox velox</i>	Candidate	Eddy and Lea counties, New Mexico/Gaines and Dawson counties, Texas

Table 3-5 <i>Wildlife Species of Concern—Link One</i>			
Common Name	Scientific Name	Status	Occurrence Concern
Black-tailed prairie dog	<i>Cynomys ludovicianus arizonensis</i>	Candidate	New Mexico and Texas

A brief description of these species is provided below.

Northern Aplomado Falcon (Falco femoralis septentrionalis)

The Northern Aplomado falcon is typically a species of open habitats in North and Central America, ranging from coastal prairie and other grasslands through tropical savanna to open woodlands containing oaks (*Quercus* spp.) and pines (*Pinus* spp.). The species has also been reported in desert grasslands. Within the Link One project area, this species could occur in Culberson, Hudspeth, and El Paso counties (New Mexico Department of Game and Fish [NMDGF], 2000). The reconnaissance survey of the project area indicated that there were no past or active Northern Aplomado falcon nest sites within or near the proposed ROW. However, suitable Northern Aplomado falcon nesting habitat was identified extending over a 43-mile long stretch of the proposed alignment in Hudspeth County, Texas, east of El Paso between the Hueco and Guadalupe mountains. Specifically, this area of potential habitat begins at the eastern base of the Hueco Mountains and extends eastward to approximately 17.5 miles west of the junction of US 54 and US 62/180.

Southwestern Willow Flycatcher (Empidonax traillii extimus)

The southwestern willow flycatcher breeds in riparian habitats along rivers, streams, or other wetlands where dense growths of willows, Russian olive, tamarisk, or other species are present, often with a scattered overstory of cottonwoods used as song perches. Although the bird was not present during recent BLM-sponsored southwestern willow flycatcher surveys of the area, much of the area along the Pecos River near Carlsbad is still considered potential habitat for this species. The potential habitat adjacent to the river crossing consists of a patch of mature saltcedar approximately 200 to 300 feet long and 30 to 40 feet wide. Although this would be considered marginal habitat for southwestern willow flycatcher it cannot be discounted as potential habitat. Two ephemeral drainages that supported stands of saltcedar and coyote willow were discovered in Texas. The first is located just west of Lamesa in Dawson County; the second is located just west of Seminole in Gaines County. Although both drainages support diffuse stands of saltcedar and/or coyote willow, there was no surface water present in either. Consequently, they did not appear to be suitable habitat for southwestern willow flycatcher.

Interior Least Tern (Sterna antillarum anthalassos)

The interior least tern breeds from California, South Dakota, and Maine southward locally to Chiapas and the Caribbean with the major inland population in the Mississippi Basin; the species winters from the Pacific Coast to Mexico and southward from the U.S. Gulf Coast. *S. a. anthalassos* is the subspecies of the Mississippi Basin and presumably breeds in New Mexico in the Roswell vicinity—regularly at Bitter Lakes NWR (the key habitat area in the state) and perhaps rarely at Bottomless Lake State Park and Wade's Bog. Two portions of the project area were initially considered potential nesting habitat for the interior least tern—Lake Gatuna in Eddy County, New Mexico and the Alkali and Salt Lake regions in Hudspeth and Culberson counties, Texas. Although these areas may occasionally support enough water to provide nesting habitat for interior least tern, both areas were dry in the April 2000 survey and were not suitable nesting habitat for the species.

Black-Footed Ferret (Mustela nigripes)

The black-footed ferret has not been reported in New Mexico or Texas in over 40 years. It is listed as both a state and federal endangered species. Three black-tailed prairie dog towns were discovered in the project area, but none were of sufficient size to provide a prey base for black-footed ferret.

Pecos Bluntnose Shiner (Notropis simus pecosensis)

The Pecos bluntnose shiner is a small silvery colored fish reaching a length of approximately 2.5–3 inches. This species is similar to the more widespread plains minnow and is also similar to the endangered Rio Grande silvery minnow. Although Pecos bluntnose shiner is believed to be confined to portions of the river north of the project area, this species could potentially move into the project area and could potentially occur in the project area during construction.

Bald Eagle (Haliaeetus leucocephalus)

Bald eagles principally occur in Texas and New Mexico as winter visitors although there are four known nesting pairs in New Mexico and Texas (S. O. Williams, NMDGF, personal communication). The species occurs casually to occasionally in summer and occurs across much of the project area during winter migration. Bald eagles are known to winter in the middle Pecos River valley and could occur in the general area where the fiber optic line crosses the Pecos River. Bald eagles utilize large trees for roosting and could utilize roost trees within or adjacent to the project area. Although the species is proposed for delisting, it is currently still listed by the U.S. Fish and Wildlife Service as federal threatened.

Pecos Pupfish (Cyprinodon pecosensis)

The Pecos pupfish is generally found in saline springs, desert streams, and gypsum sinkholes in southeastern New Mexico in the Pecos River drainage. The species was formally found in the Pecos River drainage of Texas south to the mouth of Independence Creek in Terrel County. Within the project area the Pecos pupfish is uncommon, being found in the Pecos River from Roswell to Malaga, New Mexico. However, it has been documented from the reach of the Pecos River where the fiber optic line would cross under the river and could occur in that reach during construction.

Mountain Plover (Charadrius montanus)

The mountain plover typically nests on arid short-grass and prairie habitats moderately disturbed by grazing ungulates. It is known to occur in western Texas and New Mexico. There are a number of historic nesting reports in northern Lea County, New Mexico. There are no nesting records in Hudspeth or Culberson counties in Texas, but prime mountain plover habitat was discovered in that portion of the project area during the reconnaissance survey. Approximately 9.5 miles of the project ROW passes through potential mountain plover nesting habitat in the Alkali Lakes region along the border of Hudspeth and Culberson counties in Texas. Specifically, this portion of the project alignment begins approximately 7.5 miles west of the junction of US 54 and US 62/180 and continues west to approximately 17 miles west of the junction of US 54 and US 62/180. Although there are currently no known mountain plover nesting areas in Hudspeth or Culberson counties in Texas, there are reported nest sites in Otero County, New Mexico, just north of the project area. Plovers are ground nesters and do not create elaborate nests.

Lesser Prairie Chicken (Tympanuchus pallidicinctus)

The lesser prairie chicken occurs throughout western Texas as well as eastern and southeastern New Mexico in grassland and shrubby communities. Although the historic range for this species includes Dawson and Gaines counties in Texas, the majority of the habitat within the project area in those two counties have been converted to agricultural land. However, there are extensive reaches of lesser prairie chicken habitat in Eddy and Lea counties in New Mexico. The species is known to occur in sandy areas dominated by shinnery oak in Eddy and Lea counties. The lesser prairie chicken has suffered serious declines in New Mexico and is considered particularly vulnerable to disturbance during the booming and nesting seasons. The project area passes through approximately 53 miles of potential lesser prairie chicken breeding habitat in New Mexico.

Swift Fox (Vulpes velox velox)

The swift fox inhabits shrubland, Desert Grassland, and associated Juniper Woodland where soft soils support large populations of rodents on which this species preys—especially kangaroo rats (*Dipodomys* spp.) and pocket mice (*Perognathus* spp. and *Chaetodipus* spp.). The swift fox is known to occur in Gaines and Dawson counties in Texas and in Lea County, New Mexico. It is also expected to occur in the northeastern corner of Eddy County in New Mexico. Most of the habitat within Gaines and Dawson counties in Texas have been disturbed or converted to agricultural uses. However, the majority of the swift fox habitat in Lea and Eddy counties in New Mexico is undisturbed, and swift fox could be expected within the portions of the project area that occur in Lea County and the northeastern corner of Eddy County in New Mexico.

Black-Tailed Prairie Dog (Cynomys ludovicianus arizonensis)

The historical range of the black-tailed prairie dog includes New Mexico and western, northwestern, and northern Texas. Black-tailed prairie dogs could occur throughout most of the Link One project area. Three black-tailed prairie dog towns were discovered either within or adjacent to the project area during the April 2000 reconnaissance survey. Two of the colonies are in Gaines County, Texas and the remaining colony is in Lea County, New Mexico. The Texas colonies both occur outside of the project ROW. The New Mexico colony is located at the junction of New Mexico 433 and US 62/180 at Arkansas Junction approximately 12 miles west of Hobbs, New Mexico. Portions of this colony occur within the project ROW.

Migratory Birds and Birds of Prey

Migratory birds are protected by the Federal Migratory Bird Treaty. This act makes it unlawful to pursue, hunt, take, capture, kill, or otherwise harass any migratory bird (16 USC Section 703). A migratory bird is any bird, whatever its origin and whether or not raised in captivity, which belongs to a species listed in 50 CFR Section 10.13 or which is a mutation or a hybrid of any such species, including any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof (50 CFR Chapter 1 [10-1-93 Edition]).

Most of the Link One proposed route has been cleared of large vegetation suitable for nests. However, there are many areas where trees, poles, or other structures occur adjacent to the ROW. In particular, these types of features can provide habitat for nesting birds of prey such as hawks, falcons, eagles, or owls. These birds of prey are sensitive to human presence during the nesting season. In extreme cases these birds will abandon eggs or young when disturbed by human activities. A number of raptor species are known to nest within the habitats that occur in the project area. These include Swainson's hawk, red-tailed hawk, Harris hawk, ferruginous hawk, American kestrel, burrowing owl, and great-horned owl.

Thirty-three stick nests and nine smaller nests were observed adjacent to the proposed route between Hobbs and El Paso. Most of the stick nests encountered appear to be raven nests, but even raven nests can be utilized by Swainson's hawks. All of the nests observed between Hobbs and Lamesa are believed to be raven nests and none are close enough to the alignment to be affected by project construction. One of the stick nests was occupied by a red tailed hawk at the time of the survey. This nest is located in Hudspeth County, Texas east of El Paso.

Most birds of prey utilize stick nests, but burrowing owls nest in ground burrows. Burrowing owls were encountered at all three of the black-tailed prairie dog towns found in the project area. The first burrowing owl site is located approximately 19 miles east of Seminole, Texas, adjacent to McKenzie Lake. Five burrowing owls were observed within this prairie dog colony. All of these owls are separated from the project ROW by an existing highway. The second site occurs approximately 14 miles west of Seminole, Texas, along the north side of Seminole Draw. Two burrowing owls were observed at this site. As with the previous site, this one is also separated from the proposed route by an existing roadway. The third colony occurs in Lea County, New Mexico at the junction of New Mexico Highway 433 and US 62/180 at Arkansas Junction, approximately 12 miles west of Hobbs, New Mexico. Portions of this colony occur within the project ROW. There were four burrowing owls visible at this site during the survey. These owls are likely to be year-round residents of the site.

3.1.2.2 Impacts on Wildlife

General Wildlife Impacts

The proposed route is a disturbed corridor containing an access road, one or more communication cables, and for portions of the route, parallels an existing pipeline corridor. Section 3.1.1.1 summarizes the plant communities/habitats crossed by the proposed project. The noise and activity associated with construction may temporarily disrupt wildlife use within and immediately adjacent to the ROW. Larger animals such as mule deer, antelope, fox, badger, skunks, and similar sized species will move out of the project area during construction. Smaller, less mobile species, including rodents and reptiles may be affected by the construction activities. In some cases the direct impacts of construction activities could include the injury or death of individual rodents or reptiles. However, the species likely affected by this activity are widespread and abundant throughout the project area and the temporary impacts on these species would not have an affect upon the viability or survival of the population in the project area. Upon completion of the project the loosened soils left behind by construction (particularly in caprock and gypsum bedrock areas) would provide excellent habitat for the same small rodent and reptile species. Ground inspection of the existing ROW in the project area indicates that species such as ground squirrel thrive in the loosened soil, and their burrows provide habitat for reptiles such as whiptails, side-blotched lizard, and lesser earless lizard. Although there would be temporary effects upon smaller vertebrates in the project ROW, the overall effect on these species would not be adverse and may favor some of the species in the area.

Protected Species

Eleven species with a status of federal threatened or endangered; federal proposed, threatened, or endangered; or federal candidate could occur in the general area surrounding the project alignment. Potential habitat for five of these species (mountain plover, aplomado falcon, lesser prairie chicken, black-tailed prairie dog, and swift fox) was identified within the project area. One of these species, the black-tailed prairie dog, was found within the proposed ROW. A summary of impact findings for each species is provided below.

Northern aplomado falcon

Suitable northern aplomado falcon nesting habitat was identified along the proposed alignment in Hudspeth County, Texas, east of El Paso. Surveys were conducted, but northern aplomado falcons were not found. Construction activities throughout the length of the project area would be confined to the existing ROW and are not anticipated to remove any potential nest sites. Preconstruction surveys will be performed if construction is necessary between February 1 through August 30. If Aplomado falcons are present construction will be suspended in those areas until the young are fledged. There is expected to be no effect upon northern aplomado falcons or their habitat.

Southwestern willow flycatcher

Potential southwestern willow flycatcher habitat exists along the Pecos River near Carlsbad. The Proposed Action at the Pecos River calls for directional boring under the river. The drilling operation would be set back from the riverbank and would have no direct affect upon the riparian vegetation along the river. Several surveys of the area have been conducted by the BLM and southwestern willow flycatchers are not known to use or occupy the area. With the implementation of directional drilling under the Pecos River and the closure of construction during the nesting season, there would be no effect upon the southwestern willow flycatcher or its habitat.

Interior least tern

In order to avoid any potential impacts on interior least tern, which may move into the area, construction activities would be precluded from March 1–August 15 along the project alignment from Hobbs, New Mexico westward to Carlsbad, New Mexico and the portion of the alignment located in the Alkali Lakes region of Texas. The Alkali Lakes region of the project alignment begins approximately 7.5 miles west of the junction

of US 54 and US 62/180 and continues west to approximately 17 miles west of the junction of US 54 and US 62/180. If construction is necessary between March 1 and August 15, preconstruction surveys will be performed to determine the presence of birds. If birds are not present, construction will proceed.

Black-footed ferret

Although three black-tailed prairie dog towns were discovered in the project area, none were of sufficient size to provide a prey base for black-footed ferret. It is not anticipated the project would have any effect upon black-footed ferret.

Pecos bluntnose shiner

Pecos bluntnose shiners occur in the Pecos River and could occasionally move into the project area. The proposed activity at the Pecos River calls for directional boring under the river thereby avoiding any direct effect upon the river. During the drilling operation precautions would be taken to ensure that no hazardous materials or construction materials enter the river system. With the implementation of the measures described in the project description, the installation of the fiber optic line would have no effect upon the Pecos bluntnose shiner or its habitat.

Bald eagle

Bald eagles winter in the Pecos River Valley and utilize roost trees along the river. The proposed construction of Link One is not anticipated to have any impacts upon bald eagles.

Pecos pupfish

Pecos pupfish has been documented from the reach of the Pecos River where the fiber optic line would cross under the river. The proposed activity at the Pecos River calls for directional boring under the river. There would be no direct effect upon the river. During the drilling operation precautions would be taken to ensure that no hazardous materials or construction materials enter the river system. With the implementation of the measures described in the project description, the installation of the fiber optic line would have no effect upon the Pecos pupfish or its habitat.

Mountain plover

The construction activities would be confined to the existing ROW and would have no direct effect upon potential nest sites, winter habitat, or food sources of this species. In order to avoid any potential impacts on the mountain plover, which may move into the area, construction activities would be precluded from April 1–June 30 along the portion of the alignment located in the Alkali Lakes region of Texas. If construction is necessary between April 1 and June 30, preconstruction surveys will be performed to determine the presence of birds. If birds are not present, construction will proceed.

Lesser prairie chicken

The Link One project area passes through approximately 53 miles of potential lesser prairie chicken breeding habitat in New Mexico. The proposed activity that would occur within an existing partially disturbed ROW is not anticipated to adversely affect lesser prairie chicken habitat. However, the noise and activity associated with construction could potentially disrupt booming or nesting activities. In order to avoid any potential impacts on lesser prairie chicken breeding activities, construction activities would be precluded along the project alignment from Hobbs, New Mexico westward to Carlsbad, New Mexico from March 1–August 15.

Swift fox

Swift fox habitat occurs throughout most of Lea and Eddy counties in New Mexico and swift fox can be expected to occur in those portions of the project area. However, the proposed project activities are not anticipated to have any effect upon the swift fox or its habitat.

Black-tailed prairie dog

One black-tailed prairie dog colony located at Arkansas Junction, New Mexico occurs in the ROW and would be potentially affected by construction activities. Prairie dogs would flee underground as construction activities begin, which may place some of the prairie dogs in danger during the trenching operation to bury the fiber optic line. It is likely that larger prairie dogs will flee the portions of the tunnels affected by trenching, but young prairie dog pups may not be able to move out of the way of the trenching tool. In order to avoid impacts on young prairie dogs, all construction would be precluded at the Arkansas Junction site during the pupping season. Construction activities would be precluded along the project alignment from Hobbs, New Mexico westward to Carlsbad, New Mexico March 1–August 15. With the implementation of this measure there would be no anticipated impact on black-tailed prairie dogs within the project area.

Migratory Birds and Birds of Prey

A reconnaissance survey of the project area identified 33 stick nests and nine smaller nests adjacent to the project ROW. None of these nests were within the proposed route and none would be directly affected by project activities. One of these nests (located in Hudspeth County, Texas) was occupied by red-tailed hawks at the time of the survey. Construction near this nest during the nesting season could potentially result in abandonment and loss of the young. Construction near the occupied nest site would be precluded during the time period from March 1–August 15.

Three colonies of burrowing owls were found in the general project area—two in Texas and one in New Mexico. The two colonies in Texas are outside of the proposed route and would not be affected by the construction activities. The colony in New Mexico (located at Arkansas Junction) is within the project limits and the proposed construction activities have the potential to injure or kill burrowing owls present at the site. In order to avoid impacts on burrowing owls, the site would be resurveyed prior to construction to ascertain if the owls are still present. If so, the surveyor would determine which burrows are active and the number of owls within the project limits would be verified. Prior to construction activities, the contractor, in cooperation with the landowner would obtain a permit from the U.S. Fish and Wildlife Service (USFWS) to allow live trapping of the owls, and once the permit had been acquired, a live trapping program to remove the animals from the project area would be implemented. Once trapped, the owls would be held temporarily and then would be released back to the site after construction. With the implementation of these measures the potential impacts on migratory birds and birds of prey would be brought to a low level.

3.1.3 Soils – Link One

3.1.3.1 Affected Environment

Soils in the project area are located on multiple landform types: plains, floodplains, alluvial fans, terraces, uplands, and mountains. In general, the predominant soil textures are loam, sandy loam, and gravelly loam. The soils have arid or semi-arid (ustic) soil moisture regimes. Much of the project area contains soils that are shallow to underlying caliche, gypsum, or limestone bedrock. The majority of the project ROW has flat to gently rolling topography, with a few areas having steep topography. The major soil types along Link One are summarized in Appendix G-3.

Multiple factors present challenges to maintaining soil stability and avoiding erosion and sedimentation. The soils in the project area are susceptible to water and wind erosion even in their undisturbed state. Protective mechanisms include biological soil crusts, desert pavement or cemented pan, and vegetation. The climate is arid to semi-arid, with precipitation in the range of 8 to 22 inches per year (increasing from west to east) and pan evaporation rate of approximately 100 inches per year. The soils are predominantly various loams with low organic content. The project area is split between high plains in the east and the Chihuahuan desert in the west. Vegetation types throughout the project area are predominantly dry land shrubs and grasses. In general, vegetative cover is sparse throughout the project area. From Lamesa west to the Texas-New Mexico border, a significant portion of the land is irrigated cropland where cotton and grain sorghum are among the crops grown. Sandy soils are less amenable for use with certain best management practices (BMPs) such as water-bars because of erodibility. For many of the soils in the project area, both water and wind erosion are increased

by a large amount when the vegetative cover is removed. The amount of soil eroded is directly correlated to rainfall and wind intensity and is impacted only to a very small degree by man's activities, in large part because of the relatively small areas impacted by man in the project area (BLM 1990, NRCS 2000, Soil Conservation Service [SCS] 1965, SCS 1971a, SCS 1971b, SCS 1974a, SCS 1974b, SCS 1974c, SCS 1975).

3.1.3.2 Impacts on Soils

Measurable impacts on soils would occur if soil resources were extensively disturbed resulting in severe erosion or contamination.

Under the Proposed Action, certain project activities, specifically increased vehicle traffic, installation of conduit, handholes, and Op Amp facilities have the potential to locally increase wind and water erosion and reduce the productivity of the soils in the short term. The Gypsum Land areas south of Whites City and the Maroon Cliffs area east of Carlsbad and other areas with steep terrain and minimal soil cover are particularly susceptible to increased erosion during and following construction. However, based on the measures planned by AT&T to protect environmental resources, the impacts on soil would be minimal.

3.1.4 Cultural Resources

3.1.4.1 Affected Environment

Cultural Setting

The record of occupation in southern New Mexico and west Texas begins around the end of the Pleistocene at 11,500 BP. Over this period, several different subsistence-settlement strategies were developed and have been documented in a number of sources, primarily Sebastian and Larralde (1989) and Stuart and Gauthier (1981).

The Paleoindian period (11,500-7,000 BP) represents the earliest occupation of the region and is characterized by an economic focus on the highly mobile hunting of large game species, supplemented with wild plant foods. Identification of these sites is based primarily on a set of distinctive lanceolate points, which are often found in conjunction with the remains of extinct species such as mastodon or bison. These sites tend to be limited to ridges overlooking water sources, playa edges, and the eroded slopes of major topographic features, although a number of cave sites also have been identified.

Around 8,000 BP, there was a shift from big game hunting to an emphasis on plant gathering and the hunting of smaller game species, possibly as a response to drier climatic conditions. Sites increasingly were located in environmental zones offering a wide variety of resources, and patterns of seasonal rounds were instituted in order to take advantage of available plants. In southeastern New Mexico this Archaic Period lasted until approximately AD 1000, and in west Texas until approximately AD 400. Archaic sites are defined primarily by a series of apparently long-lived point styles and by the lack of ceramics at any given site. Archaic sites and sites with Archaic components have been identified in all the areas surrounding the current project, usually as open-air lithic scatters.

Cultural, rather than environmental events, mark the transition to the ceramic or Formative Period. This most notably includes the advent of agriculture with its concomitant increase in sedentism, and the introduction of ceramics and the bow and arrow. It is during this period that one sees the greatest divergence in adaptive systems across the region. In southeastern New Mexico, this period begins anywhere from AD 750 to 900 and lasts to AD 1450 to 1550. In the Pecos Valley region, especially in the northern part, while there is evidence of increased sedentism, the populations appear to be much less dependent on agriculture than are groups farther west (Jelinek 1967). In west Texas, three phases of the Jornada Mogollon are recognized: the Mesilla, the Dona Ana, and the El Paso. Architecturally, there was an evident change as larger pueblos replaced small pithouse villages. These pueblos appear to have been abandoned in large part by AD 1350 (Lehmer 1948). When the Spanish arrived, the area appears to have been inhabited largely by mobile hunter-gatherer groups, although occupied pueblos were found further to the north along the Rio Grande. Many of these pueblos, particularly those of the Piro, were abandoned during the Spanish era.

The Historic Period begins in southeastern New Mexico with the 1583 journey by the Espejo expedition through the Pecos Valley and was followed by de Sosa's unauthorized expedition in 1590 (Walz 1951, Sebastian and Levine 1989). Although they experienced few problems with the native Indians, the increasingly aggressive presence of the Apaches and Comanches served to keep out additional settlers and explorers for years to come. Small Hispanic settlements began to spring up in the 1850s and were followed by the first cattle drives in the 1860s and the establishment of large cattle ranches in the 1870s. Farming was introduced in the 1880s, but cattle and sheep ranching, and the oil and gas industries continued to dominate the economy of the area.

Cultural Resources Identified in Link One

Prefield record checks were conducted at the Carlsbad Field Office of the BLM and the Laboratory of Anthropology site files in Santa Fe for the New Mexico portion of the project. Computer database files of the Texas Archaeological Research Laboratory were also examined for the portions of the route located in Texas.

A total of 127 previously recorded sites are located within a one-mile radius of the New Mexico portion of the proposed route. Of this total, 42 sites are located within a one-quarter mile radius. Only one of these previously recorded sites was within the area of impact. The remaining 41 sites are outside of the proposed project area and would not be impacted.

A 100 percent cultural resources inventory was conducted along the proposed ROW. A 100 foot wide corridor was examined for the New Mexico portion of the proposed ROW. A total of 23 newly recorded sites were identified in New Mexico. The 23 sites include 15 prehistoric sites, six historic sites and two multicomponent prehistoric/historic sites. The prehistoric sites, or site components, consist of artifact scatters, artifact scatters with thermal features, and sites consisting of thermal features only. The historic sites, or site components, consist of trash scatters/dumps, habitation sites, and one site with a structure. Of these 23 sites, 13 are eligible to the National Register of Historic Places (NRHP) under criterion d of 36 CFR 60.4, and are bisected by the proposed ROW.

A 50 foot wide corridor was examined in Texas. A total of nine sites were identified along the Texas portion of the proposed ROW. Thirty-seven isolated occurrences were also identified. The sites include six prehistoric sites, one historic site, and two multicomponent prehistoric/historic sites. The prehistoric sites consist of lithic scatters and lithic scatters with thermal features. The multicomponent site consists of a prehistoric roasting pit site with a scatter of historic trash. All nine sites are eligible to the NRHP under criterion d of 36 CFR 60.4.

Construction of the line in Texas, on private land, was underway in the summer of the year 2000, when it was halted voluntarily by the project proponent. It was later revealed that during construction five sites were inadvertently impacted. Damage assessments are underway and supplemental reports are being completed for the BLM and Texas Historical Commission.

3.1.4.2 Impacts on Cultural Resources

Cultural resources are non-renewable and easily damaged. Damage can occur through ground disturbance, casual site visitation, and/or theft and vandalism. The potential for unauthorized collection of artifacts, minor displacement of artifacts by vehicles, and other adverse effects to cultural resources increases with additional work within the ROW. Direct impacts on cultural resources can occur as a result of development activity including construction and maintenance. An undertaking is regarded as having an effect on a cultural property if it alters any of the characteristics that qualify it for inclusion in the NRHP.

The ROW has been in existence since 1948 with two cable lines already in place, one placed in 1948 and the other in 1987. Cultural resource studies were not conducted for the earlier cable placements. The sites identified during this study have been previously subject to construction and maintenance activities and have received some level of impact. Direct physical impacts on culturally significant and potentially significant sites would occur during ground disturbing activities related to this project. Impacts would be reduced to less than low levels through implementation of measures described in the project description of this EA and a treatment plan developed in cooperation with BLM archaeologists, SHPOs, and interested tribes.

Table 3-6 contains a summary of the cultural resources identified within the Area of Potential Effect (APE).

Table 3-6
Cultural Resources Documented – Link One

LA#	Cat.	Owner	Quad	Description	Mitigation	Eligibility
130721	2	BLM	Rattlesnake Spring	2 concentrations of burnt rock. BC, F	Site is SE of proposed ROW. Test to determine if datable deposits are present.	Eligible under criterion d. Subsurface material present in features.
130722	2	BLM	Rattlesnake Spring	Concentration of burnt rock with stain. BC, F	Site is NW of proposed ROW and will not be impacted. Monitor construction.	Eligible under criterion d. Subsurface material present in features.
130723	2	Private	Carlsbad Caverns	13 thermal features with lithics and groundstone. BC, CH, GS, T, F	Proposed ROW bisects site. Portions of the site with the features are avoidable. Restrict vehicular traffic to areas of existing disturbance. Monitor construction.	Eligible under criterion d. Subsurface material present in features.
130724	2	State	Carlsbad Caverns	Historical structural remains with historic trash.	Proposed ROW bisects site. Portions of the site with the features are avoidable. Restrict vehicular traffic to areas of existing disturbance. Monitor construction.	Eligible under criterion d. No subsurface material. Artifacts have potential to yield significant information.
130725	2	State	Black River Village	Single episode historic trash dump.	Site is NW of proposed ROW and will not be impacted. No additional treatment is required.	Not eligible. Recording has exhausted data potential.
130726	2	Private	Black River Village	Historic structural remains with rock alignments and trash.	Site is NW of proposed ROW and will not be impacted. Restrict vehicular traffic to areas of existing disturbance. Monitor construction.	Site may be less than 50 years. Additional archival research is needed to establish age, if greater than 50 years old, site is eligible under criterion d.
130727	2	BLM	Black River Village	6 thermal features with groundstone. F, BC, GS	Proposed ROW bisects site. Feature 6 is located within the proposed ROW. Test Feature 6 to determine if datable deposits are present. Restrict vehicular traffic to areas of existing disturbance. Monitor construction.	Eligible under criterion d. Subsurface material present in features.

Table 3-6
Cultural Resources Documented – Link One

LA#	Cat.	Owner	Quad	Description	Mitigation	Eligibility
130728	2	BLM	Black River Village	4 thermal features. BC, F	Proposed ROW bisects site. Portions of the site with the features are avoidable. Restrict vehicular traffic to areas of existing disturbance. Monitor construction.	Eligible under criterion d. Subsurface material present in features.
130729	2	BLM	Black River Village	4 thermal features with single episode of historic trash dump. BC, F	Proposed ROW bisects site. Feature 1 is located within the proposed ROW. Test Feature 1 to determine if datable deposits are present. Restrict vehicular traffic to areas of existing disturbance. Monitor construction.	Eligible under criterion d. Subsurface material present in features.
130730	2	BLM	Black River Village	Lithic scatter with 3 thermal features. Historic wooden structure. BC, CH, F	Site is located west of proposed ROW and will not be impacted. Restrict vehicular traffic to areas of existing disturbance. Monitor construction.	Eligible under criterion d. Subsurface material present in thermal features.
130731	2	BLM	Black River Village	Historic trash scatter.	Majority of site is west of proposed ROW. No additional treatment is required, as site is not eligible.	Not eligible. Recording has exhausted data potential.
130732	2	BLM	Black River Village	6 thermal features. BC, F	Proposed ROW bisects site. Features 3, 4 and 5 are located within the proposed ROW. Test the feature to determine if datable deposits are present. Restrict vehicular traffic to areas of existing disturbance. Monitor construction.	Eligible under criterion d. Subsurface material present in thermal feature.
130733	2	Private	Kitchen Cove	Historic trash dump.	Proposed ROW bisects site. Site is not eligible and no additional treatment is required.	Not eligible. Recording has exhausted data potential.
130734	1	Private	Kitchen Cove	Lithic scatter with thermal features. CH, F, BC	Proposed ROW bisects site. Site is not eligible and no additional treatment is required.	Not eligible. Recording has exhausted data potential.

Table 3-6
Cultural Resources Documented – Link One

LA#	Cat.	Owner	Quad	Description	Mitigation	Eligibility
130735	2	BLM	Indian Flats	Lithic and groundstone scatter with 8 thermal features. BC, CH, GS	Site is located north of proposed ROW and will not be impacted. Restrict vehicular traffic to areas of existing disturbance. Construct a temporary fence on the NW edge of the existing disturbance. Monitor construction.	Eligible under criterion d. Subsurface material present in thermal features.
130736	2	BLM	Illinois Camp SE	Lithic scatter with 3 thermal features. BC, CH, F	Proposed ROW bisects site. Restrict vehicular traffic to the areas of existing disturbance. Monitor construction.	Eligible under criterion d. Subsurface material present in thermal features.
8055	2	BLM	Illinois Camp SE	Lithic, ceramic and groundstone scatter with 33 thermal features. BC, CH, SH, F, GS	Proposed ROW bisects site. Test features within and adjacent to proposed ROW to determine if datable or buried deposits are present. Restrict vehicular traffic to areas of existing disturbance. Monitor construction.	Eligible under criterion d. Subsurface material present in thermal features.
130737	2	BLM	Tower Hill North	Lithic scatter with 2 thermal features. BC, CH, F	Proposed ROW bisects site. Portion of the site with features is avoidable. Fence southern edge of existing disturbance. Restrict vehicular traffic to areas of existing disturbance. Monitor construction.	Eligible under criterion d. Subsurface material present on site.
130738	2	BLM	Tower Hill North	Lithic scatter with 2 thermal features. BC, CH, T, F	Proposed ROW bisects site. Test within and adjacent to proposed ROW. Map and test Feature 1. Collect tools. Monitor construction following testing.	Eligible under criterion d. Subsurface material present on site.
130739	2	BLM	Tower Hill North	Lithic, groundstone, shell, and ceramic scatter with 6 thermal features. BC, CH, SH, F, GS	Proposed ROW bisects site. Site was impacted by maintenance/ construction activity after site was flagged for avoidance. Separate recommendations will be made in conjunction with a damage assessment being prepared for the BLM.	Eligible under criterion d. Subsurface material present on site.

Table 3-6
Cultural Resources Documented – Link One

LA#	Cat.	Owner	Quad	Description	Mitigation	Eligibility
130740	2	BLM	Tower Hill North	Lithic, ceramic and groundstone scatter with 4 thermal features. BC, CH, SH, GS, F	Proposed ROW bisects site. Map and test features and portions of site within and adjacent to the proposed ROW. Collect cultural material to be impacted by the proposed ROW. Restrict vehicular traffic to areas of existing disturbance. Monitor construction.	Eligible under criterion d. Subsurface material present in features.
130741	2	BLM	Lea	Lithic scatter. CH, BC	Site is located south of proposed ROW and will not be impacted. Restrict vehicular traffic to areas of existing disturbance. Monitor construction.	Eligible under criterion d. Subsurface cultural material present on the site.
130742	2	Private	Ironhouse Draw	Lithic, ceramic and groundstone scatter with 4 thermal features. BC, CH, SH, GS, F	Proposed ROW bisects site. Map and test area within and adjacent to the proposed ROW. Restrict vehicular traffic to areas of existing disturbance. Fence edges of existing disturbance. Monitor construction.	Eligible under criterion d. Subsurface cultural material present on the site.
130744	1	BLM, State, Private	Hobbs East, Hobbs West, Monument North, Ironhouse Draw, Ironhouse Well, Lea, Laguna Gatuna, Williams Sink, Tower Hill North, Illinois Camp SE, Indian Flats, Carlsbad East, Otis, Kitchen Cove, Black River Village, Carlsbad Caverns, Rattlesnake Spring, Grapevine Draw	Telephone cable	Proposed ROW parallels cable. Cable will not be impacted. No additional treatment is required.	Not eligible.
Southern Canal		Private	Otis	Irrigation canal	Bore under to avoid impact.	Eligible under criterion a.

BC=Burnt caliche, SH=Sherd, CH=Chipped Stone, S=Shell, GS=Groundstone, F=Feature, T=Tool

3.1.4.3 Native American Consultations

Native American tribes in the vicinity of the project, or those who expressed interest in this type of project, were contacted to explore concerns and identify traditional cultural properties. Tribes were notified during initial stages of the project with continued follow-up. A Memorandum of Agreement (MOA) was also circulated for tribe participation. Although consultation and communication is ongoing, comments have been received to date and no information specific to Native American or traditional use in the project area has been received. A complete summary of tribal consultations is included in Section 4.

3.1.5 Visual Resources – Link One

3.1.5.1 Affected Environment

The objective of the visual resources investigation is to identify and describe important visual resources that could be affected by the construction of the proposed project through Link One. Important visual resources are defined for this study as visually sensitive use areas where the maintenance of the surrounding visual environment is important to people's enjoyment of using an area and unique or unusual landscapes having natural scenic value. The project area is defined to include landscapes that viewers may travel, recreate, or reside where existing views may potentially be affected by the Proposed Action.

The project is located adjacent to and on public lands administered by the BLM Carlsbad Field Office. Visual resources are described using federal guidelines established by the BLM Manual, Section 8400 Visual Resource Management (VRM) system (BLM 1984). Under the VRM system, the visual resource baseline investigation has three major components: scenic quality, visual sensitivity, and visual distance zones. Based on these three factors, landscape classifications have been established. VRM classes are objectives by which the visual resources of an area are managed. The proposed project is located on VRM Class III lands where proposed project facilities and activities may be visible, but would not dominate the landscape.

The Link One project area is located in the eastern portion of the Mexican Highland section of the Basin and Range and Llano Estacado and Lower Pecos sections of the Great Plains physiographic provinces. The Mexican Highland is characterized by a pattern of isolated mountain ranges separated by aggraded desert plains. The province as a whole is one of the driest in the United States. The Great Plains contain desert and intervening highlands vegetated with grasslands and desert scrub. The Chihuahuan Desert covers central and western portions of the proposed route.

Clear skies with broad open landscape characterize the regional landscape setting of western Texas and southeastern New Mexico. This type of landscape allows for long viewing distances. Consequently, maintenance of visual resources is a concern from nearby and distant viewing locations, including views from BLM administered land and adjacent public land with high visual resource values, designated wilderness or wilderness project area, recreation areas, major transportation routes, and population centers.

One visually sensitive resource, the Guadalupe Escarpment Scenic Area, was designated in the Carlsbad BLM RMP for the purpose of limiting the visual impacts along U.S. Highway 62/180. It is a highly sensitive visual corridor between Carlsbad Caverns National Park and Guadalupe Mountains National Park. Surface disturbance in the immediate visual foreground would be visible from several key observation points along U.S. Highway 62/180. Key observation points are viewing locations where people reside, travel, or recreate.

3.1.5.2 Impacts on Visual Resources

The assessment of visual impacts was based upon methodology described in the BLM Visual Contrast Rating Handbook (BLM Manual Handbook 8431-1) in its visual contrast rating system. Effects to visual resources were assessed for the construction, operation, and closure of the proposed project. Relative value of the visual environment is defined by BLM VRM classes.

The extent to which the proposed project would affect the visual quality depends upon the amount of visual contrast created between the proposed facilities and the existing landscape elements (form, line, color, and

texture) and features (land surface, vegetation, and structures). Assessing the project's contrast in this manner indicates the severity of potential impacts and guides the development of mitigation measures so the VRM objectives would be met. Impacts were based upon the VRM classification of land crossed by the proposed project. The proposed project is located on VRM Class III lands where proposed project facilities and activities may be visible, but not dominate the landscape.

Short-term construction impacts would result from the Proposed Action. For most of the proposed route actual ground disturbance would be one to nine feet in width. Short-term contrasts in line color, form, and texture resulting from construction vehicles and activities would occur. Some travelers may briefly notice the construction activities. For travelers along Highway 62/180 in the vicinity of the Guadalupe Escarpment Scenic Area and small portions of Carlsbad Caverns and Guadalupe Mountains National Parks, the lighter color and thin line of surface soil to vegetation and subsoil contrast of the route disturbance may draw brief visual attention to the casual observer, particularly when viewed in hilly terrain in the foreground view distance zone. The changes should remain subordinate to the visual strength of the existing landscape character. A line contrast of the disturbed area would result in low additive impact on the landscape.

3.1.6 Land Use and Range Resources – Link One

3.1.6.1 Affected Environment

This section provides a general description of the major land uses, range activities, and land use designations occurring within Link One. The land use inventory was compiled through review of: federal, state and local land management/planning documents; maps supplied by federal, state and local agencies; interviews and telephone conversations with land use planners and livestock grazing specialists. Major sources included the BLM Carlsbad RMP (BLM, 1988) and United States Geological Survey (USGS) 7.5-minute topographic quadrangle maps.

The purpose of this analysis has been to identify and describe existing land uses and designations in the project area that may be affected by the Proposed Action along Link One. Land use categories discussed in this section include land jurisdiction and management plans, utilities and ROWs, land use plans, livestock grazing, and range resources.

Land Jurisdiction and Management Plans

The project area is located in portions of Culberson, Hudspeth, Gaines, Dawson and El Paso counties, Texas; and Lea and Eddy counties, New Mexico. Land jurisdiction of the existing AT&T corridor includes private land, state land and federal land, including a portion of the BLM Carlsbad Field Office. Approximately 23.7 percent of the proposed route is located on federal land.

The Carlsbad BLM RMP provides the framework for land use direction on public land managed by the BLM. Land designations are based upon certain resources that are given management emphasis. These designations also allow for multiple resource use, to the extent that such multiple use is consistent with the overall resource emphasis of the area. The project is located within an existing utility corridor on both public and private land. The Carlsbad RMP encourages the use of existing utility corridors on public land that includes existing facilities and/or ROW.

The proposed route edges the northeast corner of an Area of Critical Environmental Concern (ACEC). The 2,820 acre Chosa Draw ACEC contains hydrologically important gypsum karst including caves, sinking streams, springs, and numerous sinkholes. The area is sensitive to soil erosion and surface disturbing activities. The cave resources provide recreational opportunities as well as habitat for cave adapted animal species and point sources for groundwater recharge. It is also a unique area in that it contains a number of perennial riparian habitat sites linked to gypsum karst and cave systems. The rolling gypsum uplands, the riparian zones, the xeric drainages, and the caves themselves constitute a diversified environment sustaining a variety of gypsophilic vegetation and an abundance of wildlife species.

The project area contains several sections of open rangelands managed or under jurisdiction by the State of New Mexico. Land use on private land within each of the counties is subject to county zoning regulations. The counties' Departments of Planning and Zoning administer these regulations. Private land within the project area is used for a variety of purposes including residential, commercial, industrial, agriculture, and recreation. Individual residences are concentrated in the towns of Lamesa, Hobbs, Carlsbad and El Paso. Commercial businesses are concentrated mostly within central business district areas of these towns along U.S. and state highways routed through the towns.

Livestock Grazing

One hundred percent of BLM administered land can be grazed by livestock. Livestock grazing occurs on BLM administered land through allotments where 17 allotments occur within the Carlsbad Field Office. All are yearly allotments. The following allotments are crossed by the project:

▪ Brookin West	76056	▪ Esperanza Draw	77030
▪ Hart Rauch	76049	▪ Cass Draw	78086
▪ Laguna Tonto	76011	▪ Threemile Draw	78089
▪ Lea Townsite	76020	▪ Ewing Place	78112
▪ Halfway	76021	▪ White City	78111
▪ Laguna Toston	76022	▪ Cottonwood Springs	78106
▪ Clayton Basin	77013	▪ C P Hill	78144
▪ Maroon Cliffs	77022	▪ Grapevine Draw	78122
▪ Indian Flats	77025		

3.1.6.2 Impacts on Land Use and Range Resources

Impacts on BLM's RMP and other land use plans would be low to no impact as a result of the proposed action. No amendment to the RMP is expected. Direct impacts on the Chosa Draw ACEC would be avoided as long as construction is contained within the existing AT&T ROW.

Impacts on land and range resources are expected to be low to none. The proposed route conforms to BLM management direction regarding location and use in existing ROW.

Minor additive effects would occur to community development and sites. During construction towns may incur short-term traffic delays or detours where construction activities are present. Short-term construction impacts may result from traffic being detoured around construction zones where the route crosses or parallels roads. Traffic Control Plans would be developed and submitted to BLM, state highway departments, counties, and traffic departments of municipalities prior to construction.

3.1.7 Recreation and Wilderness – Link One

3.1.7.1 Affected Environment

BLM administered land provides recreational opportunities available by providing unrestricted settings for a variety of dispersed recreational activities. Activities that occur on public land include hunting, camping, rockhounding/collecting, picnicking, nature study, wildlife viewing, sightseeing, photography, viewing cultural/historical sights, and backcountry vehicle use, among others. All of these activities are dispersed throughout the project area.

The wilderness study area (WSA) nearest the Carlsbad BLM Field Office is Lonesome Ridge WSA. Recreation opportunities include camping, backpacking, hiking, horseback riding, and hunting.

3.1.7.2 Impacts on Recreation and Wilderness

Direct effects on recreational resources would occur if construction or operation of the project resulted in the termination of use or modification of a recreational resource or wilderness area within the project area. Indirect effects would occur if construction activities altered recreation use patterns, recreation demand, or access to use near the proposed project.

The following considerations were used to identify effects to recreational and wilderness resources: (1) Project-related changes that alter or otherwise physically affect established, designated, or planned recreation or wilderness areas or activities; (2) Project-related changes that affect officially adopted policies or goals for recreational or wilderness land management of recognized organizations or agencies; (3) Project-related changes that increase or decrease accessibility to areas established, designated, or planned for recreation or wilderness; and (4) Project-related changes that affect duration, quantity, and quality of impact on recreational or wilderness resources.

The Proposed Action would result in minimal impacts on recreation and wilderness because the proposed project would have a relatively short-term construction period (several days) and would not require a large increase of work force population. BLM administered land affected by the project would still be available for dispersed recreation activities. Previous and existing activities have displaced some wildlife, thus reducing the quality of hunting on public land along the route. As a result of the Proposed Action, temporary delays affecting public ingress/egress into public land across the project could be expected. Minimal indirect effects would occur to the Lonesome Ridge WSA resulting from short-term construction noise and dust generated from construction traffic.

3.1.8 Socioeconomics – Link One

3.1.8.1 Affected Environment

Socioeconomic impacts depend on the construction workforce size and whether workers (and family members) choose to in-migrate to the project area. If new workers are expected in the area, impacts can depend on the adequacy of existing facilities (such as housing supply) or public services. The criterion of adverse impact is therefore measured in terms of worker influx and increased demand on community services.

During peak construction, it is expected that there would be about 24-25 workers covering three spreads located approximately 100 miles apart. The length of the construction schedule is expected to be about eight months.

3.1.8.2 Socioeconomic Impacts

Workers based outside the project area would be used. Some beneficial socioeconomic impacts would be generated from construction, and to a lesser extent, maintenance workers' spending in Lamesa, Seminole, Hobbs, Carlsbad, and El Paso. Most of the workforce would be temporarily housed in these communities and a portion of their income and expenses would be "respent" locally, generating secondary income to the affected communities. Roughly, secondary income (over the long term) could equal direct income for a combined sum (direct plus secondary) of one-half million dollars.

Because the construction work force would be small (with no permanent immigration to the area), negative effects are not expected for such public services as law enforcement or fire protection. Construction of the fiber optic line is not expected to noticeably affect hotel vacancy rates.

3.1.8.3 Environmental Justice

Disproportionate impacts on minorities and low-income populations are not expected as a result of the proposed project. Hispanic populations are common throughout much of the Link One project area, however disproportionate impacts on these groups from the Proposed Action or other proposed/planned projects are unlikely. Low-income populations are scattered throughout the project area. The ROW was obtained and

originally constructed more than 50 years ago. The use of the existing ROW is considered an opportunity rather than a constraint, and was selected as an alternative independent of demographics. The Op Amp facilities in Lamesa and El Paso are modifications to existing facilities located in the central business district of each city. The other locations for Op Amp facilities are in rural unpopulated portions of the project area resulting in no impacts on minority and low-income populations. The potential for impacts on low-income populations for Proposed Action is minimal. These effects would include BLM administered land, as well as non-federal land.

3.1.9 Water Resources – Link One

3.1.9.1 Affected Environment

The climate in the project area is arid to semi-arid, with precipitation in the range of 8 to 22 inches per year and pan evaporation of approximately 100 to 110 inches per year. Soils in the project area are a mixture of coarse-grained soils that allow rapid infiltration and rocky soils or soils that form cemented pans that promote rapid runoff. The washes, streams, and rivers in the project area, with the exception of the Pecos River, are ephemeral, flowing only in response to precipitation events. Flow in the Pecos River is controlled by several dams upstream of the project area and is sometimes non-existent. Average annual runoff in the project area is less than one inch. In most areas, the average annual runoff is approximately one-quarter of an inch (USGS 1995, USGS 1996).

Low precipitation combined with a high evaporation rate results in little recharge to groundwater. Most precipitation recharge occurs during infrequent periods of prolonged rainfall. The following are (from east to west) the main aquifer systems in the project area: (1) the High Plains Aquifer in extreme western Texas and eastern New Mexico, (2) the Roswell Basin aquifer system in the vicinity of Carlsbad (which consists of an alluvial aquifer and a hydraulically connected underlying carbonate-rock aquifer), and (3) the discontinuous Rio Grande aquifer system, which is found east of Guadalupe Mountains National Park in the vicinity of and underlying the El Paso vicinity. The remaining approximately one-half of the study is characterized as “not a principal aquifer” (USGS 1995, USGS 1996).

In the High Plains Aquifer of southeastern New Mexico and the western part of the Texas Panhandle, recharge rates are correlated to the thickness and permeability of the overlying soils. Rates are slow where the soils are clayey and increase in areas overlain by ephemeral streams with sandy alluvial deposits in their channels. Recharge in the Roswell Basin aquifer system occurs mostly from infiltration of precipitation in the outcrop areas of the San Andres limestone and the alluvium in the drainage area west of the Pecos River. Discharge from the aquifer system occurs primarily as a result of ground water withdrawals for irrigation and other water uses. Recharge to the Rio Grande aquifer originates primarily in mountainous areas surrounding basins. Recharge is predominantly due to runoff that enters the aquifer by percolating downward from alluvial streambeds. In the vicinity of El Paso, pumping for irrigation far exceeds natural recharge, resulting in groundwater depletion.

There are two major ongoing programs for evaluation of water quality: (1) the Clean Water Action Plan program and (2) Clean Water Act (CWA) Section 303(d) listing of waters not meeting water quality standards (EPA 2000b).

Under the Clean Water Action Plan program, states and tribes develop and publish Unified Watershed Assessments (UWAs) (EPA 2000b). If sufficient data are available, each UWA has two components:

1. Watershed Condition, which evaluates ambient water quality data, impacts on drinking water systems, contaminated sediments, and other factors. Based on a scoring process, watersheds are defined as “Watersheds with More Serious Water Quality Problems,” “Watersheds with Less Serious Water Quality Problems,” or “Watersheds with Better Water Quality.”
2. Watershed Vulnerability evaluates aquatic species at risk, pollutant loads above limits, urban and agricultural runoff potential, population growth, and other factors. Based on a scoring process, watersheds are defined as “Watersheds with Higher Vulnerability to Pollution” and “Watersheds with Lower Vulnerability to Pollution.”

Under Section 303(d) of the CWA, each state must prepare a list of waters that are not meeting applicable water quality standards. These lists are required to be submitted to EPA for review and approval in April of every two years (e.g. 1996, 1998). Total Maximum Daily Loads (TMDLs) are then established from the most recently approved list. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount is assigned among the pollutant's various sources.

Throughout most of the Link One project area, the Unified Watershed data sufficiency thresholds are not met, and the available water quality data indicates that the water quality is meeting standards with two exceptions. In the Upper Pecos Black watershed near Carlsbad, the UWA classification is “more serious problems, low vulnerability.” For purposes of 303(d) classification, the available data indicates that some sediments are impaired based on elevated mercury levels. At the western end of the project area, the Rio Grande below Riverside Dam, the UWA classification is “better water quality, low vulnerability”. However, for purposes of 303(d) classification, available data indicate that the waters are “Impaired based on chloride, sulfate, Total Dissolved Solids.” (EPA 2000a, EPA 2000b, EPA 2000c, New Mexico Environment Department 1998, Texas Natural Resource Conservation Commission 1998).

3.1.9.2 Impacts on Water Resources

Impacts on water resources are considered significant if one or more of the criteria identified below are met.

1. As a result of project activities, surface water is contaminated by storm water runoff to levels above federal and state water quality standards.
2. As a result of project activities, surface waters defined as “waters of the U.S.” (i.e., all rivers, permanent and intermittent streams, lakes, wetlands, and natural ponds) are degraded by dredged or fill material.

Under the Proposed Action and corresponding resource protection measures, impacts on water resources for Link One are expected to be minimal. Sediment levels during runoff events are high under existing conditions, and project activities are not expected to increase these levels to any measurable degree. Placement of dredged or fill materials in “waters of the U.S.” is not expected to occur under the Proposed Action.

3.1.10 Air Quality and Noise – Link One

3.1.10.1 Affected Environment

Air Quality

EPA has established ambient air quality standards for the project area. These standards have been established for criteria pollutants including sulfur dioxide (SO₂), carbon monoxide (CO), ozone, lead, particulate matter less than 10 microns in aerodynamic diameter (PM₁₀), and nitrogen dioxide (NO₂). Areas that exceed the ambient air quality standards are classified as nonattainment. There is one nonattainment area along Link One in the El Paso, Texas area. Portions of El Paso, Texas are classified as nonattainment for CO, ozone and PM₁₀. The areas are classified as moderate nonattainment for CO and PM₁₀, and serious nonattainment for ozone. The El Paso area is in attainment for all other criteria pollutants (40 CFR 81.334).

Noise

Baseline noise levels in the project area were estimated for the more populated areas near Hobbs, New Mexico, Carlsbad, New Mexico and El Paso, Texas, and for the rural areas between major population centers. The levels are based on the relationship between noise levels and population density. The population density and related noise levels are presented in Table 3-7. These relationships are presented because ambient noise monitoring was not conducted as part of this analysis.

The noise levels in this assessment are presented in terms of decibels in the A-weighted scale (dBA). The human ear perceives lower frequencies differently than it perceives higher frequencies. The A-weighting scale de-emphasizes lower frequency sounds to better simulate human hearing.

The baseline noise levels presented in Table 3-7 are daytime and nighttime noise levels (L_{dn}) in dBA. The L_{dn} is a measurement of the equivalent sound level with a 10-decibel weighting applied to the nighttime hours of 10 p.m. to 7 a.m. A 10-decibel weighting is applied to nighttime hours because noise levels are perceived to be higher and more annoying during nighttime hours.

Table 3-7 <i>Typical Average Day-Night Sound Levels for Various Population Densities^a—Link One</i>		
Description	Population Density (People per Square Mile)	L_{dn} DBA
Rural (undeveloped)	20	35
Rural (partially developed)	60	40
Quiet Suburban	200	45
Normal Suburban	600	50
Urban	2000	55
Noisy Urban	6000	60
Very Noisy Urban	20000	65
^a For areas where there is no well-defined noise sources other than transportation noise. Source: National Academy of Sciences (NAS) 1977.		

The population density in Hobbs, New Mexico, Carlsbad, New Mexico and El Paso, Texas, and other populated area along Link One is conservatively estimated to be as high as 6000 people per square mile, which would result in ambient noise levels of 60 dBA. The population throughout the rest of the project area likely ranges from 20 to 60 people per square mile, with associated ambient noise levels of 35 to 40 dBA.

3.1.10.2 Impacts on Air Quality and Noise

The environmental consequences were assessed for construction, operation, and maintenance activities along the proposed corridor. The impacts are compared to US EPA significant impact levels and National Ambient Air Quality Standards (NAAQS) for air quality impacts and the EPA Community Noise Equivalent Level (CNEL) for noise impacts. The Op Amp facilities, including the backup generators are existing facilities in Lamesa and El Paso, Texas. Thus, there would not be additional environmental impacts from construction and operation of the sites in these two cities. All Op Amp facilities would meet all local permitting requirements for Air Quality and Noise emissions.

Air Quality

The air quality in the project area during construction would be affected primarily by fugitive dust (particulate matter) during construction activities. Minimal emissions of gaseous pollutants such as nitrogen oxides, SO₂, and CO would also occur from the operation of construction equipment.

Air quality impacts from operation of Op Amp facilities would occur mainly from the operation of diesel fired backup generators. It is anticipated that each backup generator would run one hour per month for routine engine maintenance and approximately 10 hours per year during power outages. Emissions from the backup generators are estimated based on manufacturer emission data, the engine horsepower rating and estimated

annual hours of operation. Cummins Onan 350DFCC generator sets are anticipated to be the backup generator used in this project. Generator emissions are presented in Table 3-8 below.

Table 3-8 <i>Generator Emission Rates—Link One</i>					
Pollutant	Emission Factor (gm/hp-hr)	Horsepower Rating	Operating Hours Per Year	Emissions	
				Pounds Per Hour	Tons Per Year
Hydrocarbons	0.30	535	22	0.35	0.004
Nitrogen Oxides	9.25	535	22	10.9	0.120
CO	2.25	535	22	2.65	0.029
Particulate Matter	0.17	535	22	0.20	0.002
SO ₂	0.59	535	22	0.70	0.008

The emissions presented in Table 3-8 were input into the US EPA SCREEN3 dispersion model to determine the ambient air quality impacts from operation of the backup generators. SCREEN3 predicts a 1-hour average concentration. Concentrations for other averaging periods were calculated by multiplying the 1-hour concentration predicted by SCREEN3 by the following factors: 0.9 ± 0.1 for a 3-hour average concentration, 0.7 ± 0.2 for a 8-hour average concentration, 0.4 ± 0.2 for a 24-hour average concentration, and 0.08 ± 0.02 for an annual average concentration (EPA, 1992). The ambient air quality impacts for emissions from the backup generators predicted by the SCREEN3 model are compared to EPA significant levels and NAAQS in Table 3-9.

Table 3-9 <i>Summary Of Air Quality Impacts—Link One</i>			
Pollutant and Averaging Period	Ambient Concentration ($\mu\text{g}/\text{m}^3$)	EPA Significance Levels ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)
NO₂			
Annual	32	1	100
CO			
1-Hour	98	2000	40,000
8-Hour	69	500	10,000
Particulate Matter			
24-Hour	3	5	150
Annual	0.6	1	50
SO₂			
3-Hour	23	25	1300
24-Hour	10	5	365
Annual	2	1	80

The results in Table 3-9 show that air quality impacts from operation of the backup generators exceed annual significance levels for NO₂ and 24-hour and annual significance levels for SO₂. However, given that these

backup generators only would run one hour per month, ambient air quality impacts would be minimal. All other pollutants are below the EPA significance levels. All air quality impacts are well below the federal NAAQS. Also note that the Op Amp site already is existing in El Paso, and thus, would not impact air quality in this area above existing levels.

Maintenance activities would be infrequent and utilize existing roads. The resulting particulate and gaseous pollutant emissions are not expected to impact air quality in the Link One project area.

Noise

The EPA has established a CNEL of 55 dBA. Noise levels that exceed the CNEL have an adverse impact on sensitive receptors such as schools, hospitals, and parks. Noise levels resulting from construction activities would likely exceed the 55 dBA CNEL. The exceedance of the CNEL would have a negative affect on the human population in Hobbs and Carlsbad, New Mexico and El Paso, Texas although these effects would be short-term and transient in nature, resulting in minimal impacts. Elevated noise levels during construction activities may also impact wildlife along the rural areas of the corridor for short periods of time.

The noise impacts from backup generator operation are based on manufacturer data. These data present noise levels from generator operation but do not include exhaust noise. The manufacturers data indicate that noise levels from backup generator operation would average 91 dBA at 23 feet for a generator operating in an open area. The backup generators located at the Op Amp sites would be located in protective enclosures or prefabricated buildings, which would reduce ambient noise impacts on surrounding areas. Because the Op Amp facilities are existing in Lamesa and El Paso, Texas no additional impacts on existing noise levels would occur at these sites.

Maintenance activities may also cause short-term exceedances of the 55 dBA CNEL, but would not have a long-term impact on the noise environment in the Link One project area.

3.1.11 Geology and Minerals – Link One

3.1.11.1 Affected Environment

Geology

The Link One project area lies within two physiographic provinces that differ in landforms and geology. The eastern two-thirds of the project area is located in the Great Plains physiographic province and the western one-third of the project area is located in the Basin and Range physiographic province.

The Great Plains province is characterized by thick and extensive alluvial deposits that were laid down in Tertiary and Quaternary time after a major uplift of the Rocky Mountains. At the end of this deposition period several million years ago, these alluvial deposits formed a vast, gently sloping plain that began at the foot of the Rocky Mountains and extended for several hundred miles eastward. Uplift and subsequent erosion stripped away the plain in some areas. In the project area, the Pecos River and its tributaries eroded away a substantial amount of these initial deposits. The area known as the High Plains remains relatively untouched by erosion forces. In the Link One project area, the High Plains begins east of Lamesa, Texas and extends to the west to approximately 20 miles west of Hobbs, New Mexico. Throughout much of the Great Plains province, windblown (eluvial) deposits overlay the alluvial materials. Caliche deposits, which are evaporate deposits that formed over time as the climate changed from wet to arid, protect the combination of alluvial and eluvial materials. At the present time in the Great Plains province, the thickness of alluvial materials generally ranges from 100 to 300 feet thick, but in places may be as thick as 1,500 feet. The majority of the High Plains or Ogallala aquifer consists of alluvial deposits on the order of 600 feet thick. The bedrock surface that underlies the alluvial deposits in general dips slightly to the southeast. Regional topography is flat to gently rolling and in general also dips to the southeast.

Link One is in the Great Plains province from Lamesa west to approximately Whites City. In the Great Plains province, the project route crosses parts of two major aquifer systems, the High Plains or Ogallala aquifer and

the Pecos River Basin aquifer. In the project area, the Guadalupe Mountains south and west of Whites City are the easternmost mountain range of the Basin and Range province. The Guadalupe Mountains were formed by uplift of a marine reef deposited in the Permian age (approximately 286 to 245 million years ago). The Carlsbad Caverns near Whites City were formed by the dissolution of limestone in the reef formation by groundwater. (USGS 1985; USGS 1995; USGS 1996; Chronic, H. 1987; Spearing, D. 1991).

Even though the Basin and Range province, including the Rio Grande Rift, were formed as a result of extensive faulting, most of the large scale faulting occurred over 15 million years ago. Few active faults exist, and there are no major active faults in the project area (USGS 2000a). The project area is an area of low seismic hazard, with expected peak acceleration on the order of five percent of the acceleration of gravity (USGS 2000b). The rare earthquakes experienced in the area have small magnitudes.

Cave and karst formations may be found in the project area from Whites City south to the Texas-New Mexico border. These formations receive protection from BLM. A cave and karst specialist surveyed approximately 16 miles of the ROW in the area where cave and karst formations are expected to occur. BLM requested a survey along the ROW for a width of 100 feet to ensure a margin of safety over the 40 foot wide ROW. Results of the survey report indicated two cave and karst features of concern:

1. Feature A-01 – A sinkhole measuring 20 by 10 by 3 feet exists inside the cable ROW located approximately five miles south of Whites City. There are several small openings that receive surface water drainage and associated debris. None of the openings are large enough to admit a person.
2. Feature A-08 – A large joint and fracture system running parallel to the bluff face near the top of gypsum hills. The fracture system contains sinkholes and small cave entrances on either side of the fiber optic ROW. There are no visible sinkholes or cave entrances within the ROW. However, the newly installed fiber optic cable would cross the fracture system perpendicularly. (Source: Bridges, R.A. 2000.)

Mineral Resources

In the project area, locatable minerals (silver, copper, zinc, and gold) have not been mined in areas on or adjacent to the project ROW. Leasable minerals, including salt, potash, limestone, and gypsum are extracted in the project area (New Mexico Bureau of Mines and Mineral Resources 1998; Spearing, D. 1991; Bureau of Economic Geology, University of Texas at Austin 1998). There is extensive oil and gas production in the project area (New Mexico Bureau of Mines and Mineral Resources 2000; Spearing, D. 1991). There are no known economically recoverable coal resources in the project area (USGS 1997).

In eastern Eddy County, potash mining is known to cause subsidence at the surface.

3.1.11.2 Impacts on Geology and Minerals

Measurable impacts on the geology and associated mineral resources would result if one or more of the following conditions occur:

- the geologic setting and associated geologic hazards would create a danger to human health and the environment
- project activities resulted in damage to unique and sensitive geologic resources (e.g., unique cave and karst formations)
- mineral resource extraction activities were permanently decreased as a result of project activities

Based on topography, geologic setting, and proposed project activities, impacts from or to geological resources are anticipated to be minor. The potash-mine related subsidence could possibly impact the project after the fiber optic line is placed in the ground, but the most severe possible impact is likely to be disruption of service. This impact would not create a danger to human health and the environment. Based on the cave and karst survey, there are two locations in the project area with cave and karst features that could be impacted by project activities. However, with the mitigations identified in the project description successfully employed, no impacts on cave and karst resources are expected. No impacts are anticipated to mineral resource activities because of the near-surface nature of the project and the fact that the project is confined to a 40 foot wide

ROW. Existing and new mineral extraction activities would be able to avoid the existing project ROW without decreasing mineral resource extraction activities.

3.1.12 Human Health and Safety – Link One

3.1.12.1 Affected Environment

Materials hazardous to humans, wildlife, and sensitive environment would be present during project construction. These materials include petroleum fuels, human waste, and chemical toilets. Wet spoils and bentonite clay would also be present during project construction. The proposed route crosses other natural gas and petroleum product transmission pipelines.

3.1.12.2 Impacts on Human Health and Safety

Spoils and bentonite are not hazardous to human health; however, they can temporarily adversely affect water quality, vegetation, and wildlife. Spill prevention and containment measures would be implemented during construction to ensure that these materials are contained from entering the environment. To minimize the impact of hazardous materials (fuels and lubricating oils) during construction activities, all equipment would be regularly inspected for leaks. Any leaks detected would be promptly corrected. During fueling operations, appropriate personnel would be standing by to prevent overfill of equipment. Absorbent materials would be kept at the construction site to clean up and contain any drips and/or spills. No equipment would be refueled within 100 feet of any wetland or waterway. Agreements have been in place from the existing AT&T easement crossing these facilities, which have procured the issues and concerns of human health and public safety.

3.2 LINK TWO – EL PASO, TEXAS TO TUCSON, ARIZONA

3.2.1 Vegetation – Link Two

3.2.1.1 Affected Environment

The Link Two project area is within the Basin and Range Physiographic Province that is characterized by broad, low-elevation valleys rimmed by long, thin, parallel mountain ranges (Scarborough, 2000). The project route passes through the Sonoran and Chihuahuan Deserts and intervening highlands. The plant communities of these areas are generically referred to as desert scrub, desert grassland, or savannah grassland. The Sonoran Desert is visually dominated by leguminous trees/shrubs and tall columnar cacti (Dimmitt, 2000). Bi-seasonal rainfall, mild winters, and rare frosts allow the dominance of floristic elements that originated in southern tropical regions. In contrast, the Chihuahuan Desert is a cold, high desert with frequent hard frosts (Dimmitt, 2000) and a single rainy season in the summer. Typical floral growth forms are low shrubs and succulents and small cacti. Chihuahuan floristic composition is dominated by species of colder climate origins. With rare exceptions in riparian areas, continuous canopy closure is nonexistent, and groundcover is intermittent, with significant areas of exposed ground.

The AT&T corridor, in which the proposed fiber optic cable would be placed, is a narrow (16.5 feet to 40 feet wide) previously disturbed ROW which traverses through and near these natural plant communities. Currently, others cables already occupy portions of the corridor, with an additional dominant feature being an access road, which often fills the majority, or the entire corridor.

Plant Community/Habitat Descriptions

While the majority of the project study area could be lumped categorized as Chihuahuan or Sonoran desert scrub, more detailed plant community divisions are provided below. Reconnaissance surveys performed in March 2000, immediately prior to surveys for threatened and endangered species, resulted in the identification of 11 habitat types summarized in Table 3-10.

Table 3-10 <i>Habitat Types in the Project Area—Link Two</i>	
Community	Description
Cactus Desert	Succulents are codominant with shrubs, usually in desert flats and washes. In project area, generally restricted to Tucson to New Mexico borders; most prevalent in the Arizona Uplands Subdivision of the Sonoran Desert (Dimmitt, 2000), in the extreme western end of the project area near Tucson.
Creosote Desert	Creosote (<i>Larrea divaricata</i>) is dominant to monoculture, but segregates spatially and does not form a continuous canopy. In Arizona, generally in low flat desert washes. In New Mexico, also in upland plateaus and on bajadas at base of hillsides.
Mesquite Desert	Mesquite (<i>Prosopis spp.</i>) is dominant to monoculture, but segregates spatially and does not form a continuous canopy. In Arizona, generally in low flat desert washes. In New Mexico, also in upland sand flats and sand dunes, forming hummocks.
Desert Scrub	Shrubs and subshrubs dominate; mesquite is not rarely dominant; shrubs do not form a continuous canopy. In project study area, generally on rocky hills and breaks (Gentry, 1957). May include Chaparrillo in Chihuahuan.
Grassland	Arizona & Western New Mexico: Grasses are dominant to co-dominant with scrub/shrub and succulents (Burgess, 1995); Eastern New Mexico: homogeneous stands of grasses and shrubs mixed together, or patchy mosaics of grassland and scrubland (Dick-Peddie, 1993).

<p align="center">Table 3-10</p> <p align="center"><i>Habitat Types in the Project Area—Link Two</i></p>	
Community	Description
Yucca Grassland	Grasses and Yucca are codominant (Dick-eddie, 1993). Shrubs may be codominant. Habitat shifts to scrub when shrubs dominate. Similar ecotone gradation between Yucca Grassland and Grassland. Gentry, 1957; Dick-Peddie, 1993).
Gallery Forest	Riparian trees form closed or partially closed canopy; Dominant species include tree-form of velvet mesquite; walnut, willow, cottonwood. In close association with linear waterways.
Playa	Salt tolerant grasses and other herbaceous plants, or unvegetated areas, within basins with high soil salt/mineral contents. Seasonally or occasionally flooded or saturated.
Ag. Orchard	Natural vegetation is removed and replaced by woody crop, usually pecans or apples in project area.
Ag. Cropland	Natural vegetation removed and replaced with seasonally harvested rowcrops.
Urban	Developed areas were classified as Residential/Commercial/Suburban

Threatened and Endangered Plant Species

Special status plant species are summarized in Table 3-11 according to their status and occurrence.

<p align="center">Table 3-11</p> <p align="center"><i>Plant Species of Concern—Link Two</i></p>				
Common Name	Scientific Name	Status	Agencies	Occurrence Concern
Night blooming cereus	<i>Cereus greggii</i> Engelm.	AZ highly safeguarded NM – concern	BLM, NM, AZ	Creosote flats, Pima, Cochise counties AZ NM-AZ
Pima pineapple cactus	<i>Coryphantha scheeri</i> (Kuntz) L. Benson var. <i>robustispina</i> (Schott) L. Benson	FE	BLM, AGFD	Pima County AZ
Arizona hedgehog cactus; giant claret-cup hedgehog cactus	<i>Echinocereus triglochidiatus</i> Engelm. var. <i>arizonicus</i> (Rose ex Orcutt) L. Benson	AZ – concern	BLM	Pima, Cochise counties AZ
Sand prickly pear	<i>Opuntia arenaria</i> Engelm.	NM threatened	BLM	Dona Ana County NM

Night Blooming Cereus (Cereus greggii Engelm)

This species is protected in Arizona, and is an agency species of concern in New Mexico. It grows in creosote and mesquite flats, often intertwined with a nurse plant. Plants are up to 4 feet tall, with brittle branches no wider than 1/2 inch, with 4 to 6 ribs, minute dark spines. In Arizona, this plant grows in Pima and Pinal counties. In New Mexico, it has been recorded in Luna and Dona Ana counties. Individuals of this species were not found within the proposed ROW.

Pima Pineapple Cactus (Coryphantha sheeri var. robustifolia)

This federally protected plant is known to occur in Pima County, Arizona. Its numbers have been reduced in part due to removal by collectors and dealers. As with other varieties of *C. sheeri*, this species grows as solitary plants or rarely in clusters. Key characters for early March field identification include a broad 1.4-inch long

central spine subtended by 6 to 12 broad, recurved 1.4-inch long yellow radial spines with reddish to pink tips at the apex of spirally arranged 1- to 1.5-inch long tubercles. The Pima pineapple cactus inhabits open flats with alluvial soils. A related species, *C.s. var. sheeri*, is found in similar habitats, but has much narrower spines. Individuals of *C.s. var. robustifolia* were not found within the proposed ROW for Link Two.

Arizona Hedgehog (Echinocereus triglochidiatus Engelm. var. arizonicus)

Arizona hedgehog cactus/giant claret-cup hedgehog cactus (*Echinocereus triglochidiatus Engelm. var. arizonicus* [Rose ex Orcutt] L. Benson) is an Arizona "highly safeguarded protected plant" that grows among rocks and boulders in oak chaparral in southeastern Arizona. The name easily can be confused with the Arizona rainbow hedgehog cactus, which shares the same habitat; however, these species are entirely different. Arizona hedgehog cactus grows singly or in clusters. This plant is characterized by 8- to 14-inch tall, light green stems. Spines are located at the tips of flaccid tubercles that damage easily when touched. The Arizona hedgehog is apparently prized by collectors/dealers for its large scarlet flowers. Individuals of this species were not found within the proposed ROW for Link Two.

Sand Prickly Pear (Opuntia arenaria Engelm)

Sand Prickly Pear (*Opuntia arenaria Engelm*) is a New Mexico threatened cactus known to occur in a few localities on and among sandy dunes, on sandy floodplains in arroyos, and sandy areas in extreme southeastern New Mexico. The Sand Prickly Pear has much thicker and narrower stem joints compared to typical prickly pear, and more closely resembles a cholla. Individuals of this species were not found in the proposed ROW for Link Two.

Vascular Plant Species Observed

Appendix H-1 provides a table of vascular plant species observed within the proposed ROW for Link Two and within adjacent disturbed and undisturbed plant communities during the March 2000 field survey. While the early spring timing of the survey does not provide a full representation of plant diversity in these communities, plant species of concern (Table 3-11) and other threatened and endangered plants potentially occurring in the study region were identifiable to a species level in early spring. Dominant indicator species of plant communities and species that provide habitat structure were identifiable at least to genus level and usually to species level.

3.2.1.2 Impacts on Vegetation

The proposed ROW is a previously disturbed corridor that currently contains an access road, fiber optic cable, and, for portions of the route, a gas pipeline. Thus, while plant communities through which the corridor traverses include undisturbed natural communities, the area of proposed impact (the proposed ROW) is a continuously disturbed corridor, in many cases limited to the access road width plus an adjacent 2 to 4 feet on one side.

No plant species of concern (Table 3-11) or other federally or state listed threatened or endangered plant species were found within the ROW. Mature yucca grasslands, habitat for protected nectar-feeding bats, are adjacent to, and in some instances are located within small portions of the proposed ROW. Cactus plants (in particular prickly pear and cholla species) and mature yucca and agave plants occur along, and in some instances, within the ROW. It is likely that some of these plants would be impacted by project construction.

It is not anticipated that impacts on minor numbers of mature yucca and agave within the ROW would result in significant impacts on those protected species that feed upon or nest within them. Efforts should be made to avoid these plants where practicable. In addition, vegetation impacts would be minimized by implementation of Federal Reclamation Plan Guidelines on BLM administered land (see Appendix D).

A summary of habitat types crossed by the project route is presented in Table 3-12.

Table 3-12 <i>Summary of Habitat Types Crossed/Adjacent to Proposed Route—Link Two</i>		
Habitat Type	Length in Miles	Percent of Project Route
Ag. Crop	8.5	3
Ag. Orchard	1.6	<1
Cactus Desert	2.1	<1
Commercial	1.0	<1
Creosote Bush Desert	33.3	10
Creosote/Mesquite	5.3	2
Gallery Forest	0.2	<1
Grassland	89.2	27
Mesquite Desert	38.1	12
Pasture	0.5	<1
Playa Grassland	9.2	3
Urban/Residential	45.1	18
Desert Scrub	33.6	10
Yucca Grassland	52.3	15
Total	320 Miles	100

3.2.2 Wildlife – Link Two

3.2.2.1 Affected Environment

Wildlife Species Observed

The species observed during field surveys. Species identifications were made by visual observations, tracks, scat, and/or by burrows is included in Appendix H-2. All species were observed in areas adjacent to, rather than within, the project ROW corridor for Link Two.

Wildlife Species of Concern

This section of the EA addresses wildlife species of concern. Table 3-13 lists wildlife species of concern within the project area that were identified by federal and state resource agencies. Field assessments were performed in March 2000.

Table 3-13 <i>Wildlife Species of Concern by State and Agency—Link Two</i>			
Common Name	Scientific Name	Federal/State Status	Occurrence Concern
Arizona Game And Fish Department			
California leaf-nosed bat	<i>Macrotus californicus</i>	SC ⁽¹⁾	AZ
Chiricahua leopard frog	<i>Rana chiricahuensis</i>	ST ⁽²⁾	AZ
Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuenae</i>	FE ⁽³⁾ , ST	AZ
Lowland leopard frog	<i>Rana yavapaiensis</i>	SC	AZ
Mexican long-tongued bat	<i>Choeronycteris Mexican</i>	SE ⁽⁴⁾	AZ
Northern gray hawk	<i>Asturina nitida maxima</i>	ST	AZ
Plains leopard frog	<i>Rana blairi</i>	SE	AZ
Sonoran desert tortoise	<i>Gopherus agassii</i>	SC	AZ
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE, SE	AZ
Western red bat	<i>Laqsiurus blossevillii</i>	SC	AZ
Arizona: BLM			
Cactus ferruginous pygmy owl	<i>Glaucidium basilianum cactorum</i>	FE, SE	AZ
Jaguar	<i>Panthera onca</i>	FE, SE	AZ
Lesser long-nose bat	<i>Leptonycteris curasoae yerbabuenae</i>	FE, ST	AZ
Razorback sucker	<i>Xyrauchen texanus</i>	SE	AZ
New Mexico: BLM			
American peregrine falcon	<i>Falco peregrinus anatum</i>	SS ⁽⁵⁾	NM
Baird's sparrow	<i>Ammodramus bairdii</i>	ST	NM
Ferruginous hawk	<i>Buteo regalis</i>	SS	NM
Jaguar	<i>Panthera onca</i>	FE	NM
Mountain plover	<i>Charadrius montanus</i>	SS	NM
Northern aplomado falcon	<i>Falco femoralis septentrionalis</i>	FE, SE	NM
Notes: (1) SC - State Candidate (2) ST - State Threatened (3) FE - Federal Endangered (4) SE - State Endangered (5) Ss - State Sensitive			

Peregrine Falcon (Falco peregrinus anatum)

The Peregrine falcon occurs as wintering individuals and pairs in New Mexico and Arizona. They utilize a variety of habitats as long as suitable elevated perch sites occur within the area. No individuals of this species were observed during the field survey, although the potential exists that an individual could occur adjacent to the projected ROW.

Baird's Sparrow (Ammodramus bairdii)

Baird's sparrow is a winter resident in the eastern plains and southern lowlands in New Mexico and Arizona. During the field assessment no individuals of this species were observed. Suitable desert grassland habitat was observed at several locations in and adjacent to the ROW within New Mexico. Due to feeding habitat occurring within the ROW there is a possibility that an individual could occur on the ROW.

Cactus Ferruginous Pygmy Owl (Glaucidium brasilianum cactorum)

The cactus ferruginous pygmy owl is a permanent resident of central and southern Arizona. Areas of occupancy include xeric riparian washes in the Organ Pipe Cactus National Monument, the riparian forest of the lower San Pedro River, and saguaro forests near Tucson. The ferruginous pygmy owl nests in columnar cactus cavities and in dense woody thickets with trees having nesting cavities. The diet of the ferruginous pygmy owl consists of small birds, insects, small mammals, invertebrates, reptiles, and amphibians. Threats include degradation and loss of riparian forests and woodlands, urban development (near Tucson), and competition for nesting cavities with a non-native species, the starling (*Sturnus vulgaris*). Information published by the USFWS indicates that the project ROW occurs outside of the Category III area for occurrence of the species.

During the field survey along Link Two, no individuals of this species were observed. A narrow band of suitable habitat occurs on and adjacent to the ROW east of Tucson at Cienega Creek, although, according to agency personnel no individuals of the species have been documented in that area.

Ferruginous Hawk (Buteo regalis)

Ferruginous hawks occur as residents and winter migrants in New Mexico and Arizona, and are considered rare to uncommon. The Ferruginous hawk occurs mainly in sagebrush valleys and rolling grasslands. The species breeds in grasslands in northern and west-central Arizona and pinyon-juniper mesas in the San Juan Valley. The Ferruginous hawk feeds primarily on prairie dogs, ground squirrels, and less regularly on larger insects and birds. No individuals of this species were observed on or adjacent to the proposed project ROW for Link Two.

Jaguar (Panthera onca)

The jaguar is federally endangered throughout its historic United States range, including New Mexico and Arizona. Suitable habitat is more related to the presence of prey and safe rest sites than to particular vegetation. However, in the northern edge of the jaguar's range (including Arizona and New Mexico), jaguar habitat is described as arid mountainous oak/pine woodlands and savannahs. Areas identified as potential jaguar habitat are primarily south of Interstate Highway 10. Poaching and loss of contiguous north-south travel corridors are primary risk factors for the North American jaguar.

The proposed Link Two project corridor is located in flats and foothills adjacent to potential jaguar habitat, and crosses through a small portion of potential habitat in the oak/madrone boulder habitat of Texas Canyon, Cochise County, Arizona. No individuals or indications of this species were documented on or adjacent to the project route.

Lesser Long-nosed Bat (Leptonycteris curasoae yerbabuenae)

The lesser long-nosed bat is found in Arizona from the Picacho Mountains south and west to the Agua Dulce, south and east to the Chiricahuas, and into Mexico. Lesser long nose bats time their northern migration to coincide with the blooming of the saguaro cactus, whose nectar and pollen are their supply of food during spring migration. They arrive at summer roost sites (caves and mine tunnels below 5,000 feet elevation) in southern Arizona by mid-April, where females produce single-offspring broods by mid-May. After the young "fledge," maternal colonies move to higher elevations. Southern migration has occurred by mid-October, and approximates the blooming time for several agave species.

Field surveys were performed in early March, prior to northward migration of this species. Appropriate plant community structure (presence of combinations of yucca, agave, and various cactus species as community dominants) for potential lesser long-nose bat feeding habitat was observed in eastern Arizona and western New Mexico. However, locations where abundant potential feeding habitat is present in proximity to potential roost habitat (mines, rock crevices, potential cave-like habitats) are limited to the Cienega Creek area east of Tucson and the Texas Canyon area east of Benson, Arizona.

Mexican Long-tongued Bat (Choeronycteris Mexican)

Mexican long-tongued bats roost in small groups, usually in canyons, caves and mine tunnels, but also in relatively exposed locations. They are found in Arizona from the Chiricahuas to the Santa Catalinas and Baboquivaris, and into southwestern New Mexico. Their preferred habitat is Sacaton grasslands, sycamore, cottonwood, rabbitbrush, oak savanna, and coniferous forest. This species winters in Mexico and is a resident of Arizona and New Mexico scrub habitat during the spring and summer months when the plant communities are flowering and nectar is abundant.

The March 2000 field assessment of the Link Two proposed fiber optic corridor occurred prior to assumed arrival of migrating bats and was intended to identify potential habitat rather than locate individuals of this species. Potential Mexican long-nose bat feeding habitat was observed in New Mexico and Arizona. However, locations where abundant potential feeding habitat is present in proximity to potential roost habitat (mines, rock crevices, potential cave-like habitats) is limited to the Cienega Creek, east of Tucson and Texas Canyon east of Benson, Arizona.

Mountain Plover (Charadrius montanus)

The mountain plover winters along the southwestern border of the United States, including New Mexico and Arizona. Winter habitat for this increasingly rare bird includes basin sagebrush, barren playas, sandy deserts, disturbed areas around windmills and water tanks, and similar barren or disturbed areas caused by livestock grazing or prairie dog (*Cynomys* sp.) towns. Ground dwelling beetles and grasshoppers comprise a major portion of mountain plover diet, as do crickets, flies and ants. The mountain plover breeds from Wyoming to Kansas, well north of the Link Two project area.

During the field assessment of Link Two no individuals of this species were observed. Barren playa areas occur adjacent to the corridor in the Willcox Playa. The eastern quarter of the project corridor passes through sandy desert areas.

Northern Aplomado Falcon (Falco peregrinus anatum)

In New Mexico and Arizona, Northern Aplomado falcon habitat is typified by desert grassland savannas with blue grama (*Bouteloua gracilis*) and tobosa grass (*Hilaria mutica*), interspersed with mesquite, cactus, and yucca. The historical breeding range in the United States was along the border of the United States and Mexico from southeast Arizona to Texas. Currently, except for re-introduced individuals, it occurs primarily in Mexico. The Northern Aplomado falcon usually nests in trees or tall shrubs, where it appropriates nests of other birds, including Chihuahuan ravens (*Corvus cryptoleucus*) and Swainson's hawks (*Buteo swainsonii*). No individuals were documented during the field assessment of the proposed project ROW for Link Two.

Razorback Sucker (Xyrauchen texanus)

The Razorback sucker formerly occurred in all major and larger streams of the Colorado River drainage. Natural populations have largely been reduced to a non-recruiting population in Lake Mohave, although a few adults recovered from Lake Mead, Lake Havasu, the Central Arizona Canal, and the lower Colorado River area apparently represent other small, remnant natural populations. The long-term success of massive reintroductions into the Gila, Verde, and Salt Rivers is still unknown. No individuals were documented during the field assessment of the proposed project ROW for Link Two.

Southwestern Willow Flycatcher (Empidonax traillii extimus)

The Southwestern willow flycatcher breeds in riparian habitats from southern California, Utah, and Nevada, to Arizona, New Mexico, and west Texas. The southwestern willow flycatcher is an obligate riparian species occurring along rivers, streams, and wetlands where dense growths of willows (*Salix* sp., *Baccharis*), arrowweed (*Pluchea* sp.), buttonbush (*Cephalanthus* sp.), tamarisk (*Tamarix* sp.), Russian olive (*Eleagnus* sp.), or other plants are present. Often a scattered overstory of cottonwood is found in association with suitable habitat and is utilized for feeding and nesting habitat. Throughout its range, riparian habitat is naturally rare or found in small and/or linear locales that are widely separated by vast expanses of arid lands.

The BLM communicated during the pre-survey coordination meetings that nesting pairs of this species are known to occur in suitable habitat at Cienega Creek.

3.2.2.2 Impacts on Wildlife

The proposed ROW associated with Link Two is a disturbed corridor containing an access road, one or more communication cables, and for portions of the route, a pipeline. Section 3.2.1.2 summarizes the plant communities/habitats crossed by the proposed project.

None of the above-described species or other listed species was observed within or adjacent to the proposed ROW during the field survey; however, the proposed ROW is adjacent to habitat that some of these listed species prefer. A summary of impact findings, by species, is provided below:

Peregrine falcon - No impacts or disturbance to this species and/or habitat utilized by this species would occur as a result of the project. Although the potential exists that an individual could occur adjacent to the project ROW, the nature of this project's impacts are limited to the existing disturbed corridor that has no suitable elevated perch sites in immediate proximity.

Baird's sparrow - Disturbance from construction activities would flush any occurring individuals out of the way of construction equipment. No impacts on individuals of this species would occur as a result of construction activities. Individuals would move away from the area of equipment operations. Long-term benefits to the species would result from the re-vegetation of disturbed grounds in accordance with agency requirements.

Cactus ferruginous pygmy owl - At the crossing of Cienega Creek, the AT&T corridor is a cleared and graded approach and exit of the creek crossing. The proposed installation would not affect any suitable habitat for this species adjacent to the easement; therefore, no impacts on the species or habitat would result from the proposed construction.

Ferruginous hawk - Construction would be limited to the previously disturbed ROW; therefore, no impacts on the ferruginous hawk and/or its habitat would occur as a result of the proposed project.

Jaguar - Construction of the proposed project would not impact jaguar habitat, nor would it create boundaries to passage in potential north-south travel corridors.

Lesser long-nosed bat - The proposed fiber optic project would have no impacts on this species due to the highly disturbed nature of the existing easement and small number of mature agave plants that may be potentially impacted by construction.

Mexican long-tongued bat - As with the lesser long nose bat, there should be minimal to no impact on this species because the ROW is previously disturbed and few appropriate feeding plants occur within the ROW near potential bat habitat.

Mountain plover - Barren playa areas occur adjacent to the corridor in the Willcox Playa. The eastern quarter of the project corridor passes through sandy desert areas. However, placement of a buried fiber optic cable in a previously disturbed corridor is not expected to impact the winter habitat or food source of this species.

Northern Aplomado falcon - Due to placement of the proposed underground fiber optic cable in a previously disturbed corridor that generally closely parallels a major thoroughfare, no impact would occur to this species and/or to habitats that could support individuals of this species.

Razorback sucker - Within the Colorado River drainage basin, the proposed project corridor crosses three waterbodies: the San Simon River, San Pedro River, and Cienega Creek. The San Simon River, San Pedro River and Cienega Creek are intermittently flowing; therefore, critical habitat for this fish does not occur within the project area at these waterbodies. No impacts are anticipated from the proposed project.

Southwestern willow flycatcher - The BLM communicated during the pre-survey coordination meetings that nesting pairs of this species are known to occur in suitable habitat at Cienega Creek. The crossing of the creek is accomplished by attaching the conduits to an existing bridge and therefore, no impacts would occur on nesting pairs or habitats that could support this species.

In summary, no impact on listed species and/or to habitat that supports listed species would occur as a result of the proposed project due to the previous disturbances within the ROW, no sightings of individuals of the key species of concern, and timing of construction.

3.2.3 Soils – Link Two

3.2.3.1 *Affected Environment*

Soils in the Link Two project area are located on four main landform types: floodplains, alluvial fans, terraces, and mountains. Among these, alluvial fans and terraces are by far the dominant landforms along the project ROW. In general, the predominant soil texture is sandy loam and the soils have arid or semi-arid soil moisture regimes. The majority of the project ROW has flat to gently rolling topography, with a few areas having steep topography. The major soil types along Link Two are summarized in Appendix H-3.

Multiple factors present challenges to maintaining soil stability and avoiding erosion and sedimentation. The soils in the project area are susceptible to water and wind erosion even in their undisturbed state. Protective mechanisms include algal crusts, desert pavement or cemented pan, and vegetation. The climate is arid to semi-arid, with precipitation in the range of 8 to 16 inches per year and pan evaporation rate of approximately 100 inches per year. The soils are predominantly sandy loams with low organic content. A large portion of the project area falls within the Chihuahuan desert where vegetation types are predominantly desert shrubs and grasses. In general, vegetative cover is sparse throughout the project area. A significant portion of the soil types forms a cemented pan at or near the surface, which, if undisturbed, provides some protection from water erosion, but not necessarily protection from wind erosion. The sandy soils are less amenable for use with certain BMPs such as waterbars because of erodibility. The amount of soil eroded from mountains and alluvial terraces is directly correlated to rainfall and wind intensity, and is impacted only to a very small degree by man's activities (SCS 1973, SCS 1976, SCS 1980a, SCS 1980b, SCS 1980c, SCS 1983).

3.2.3.2 *Impacts on Soils*

Measurable impacts on soils would result if soil resources were extensively disturbed resulting in severe erosion or contamination. Under the Proposed Action for Link Two, certain project activities, specifically increased vehicle traffic, installation of conduit, buried access vaults, and Op Amp facilities, have the potential locally to increase erosion and reduce the productivity of the soils in the short term. These impacts are not considered significant based on the resource protection measures that would be implemented by AT&T. Soil-related impacts also would be minimized by implementation BLM Reclamation Plan Guidelines on public land. (See Appendix D)

3.2.4 Cultural Resources – Link Two

3.2.4.1 *Affected Environment*

Cultural Setting

Link Two would cross southwest New Mexico and southeast Arizona. Human occupation of this area spans at least the last 11,500 years. Beginning with the Paleoindians who entered North America at the end of the Pleistocene, the region's history is traced through later hunter-gatherers, the advent of agricultural lifeways and ceramics, the Spanish entrada, and subsequent Mexican and American occupations.

By ca. 11,500 BP Paleoindian hunter-gatherers were present in the study area. These early populations hunted mammoths and later, bison, but also relied on a wide variety of plants and smaller animals. Diagnostic projectile points and other distinctive stone tools are often found in association with extinct fauna at Paleoindian sites (Haury et al. 1953; Haury et al. 1959).

During the Archaic period, ca. 8000-3000 BP human populations adopted a more generalized hunting and gathering lifeway. This seasonally mobile adaptation targeted a diversified faunal and floral resource base (Irwin-Williams 1979; MacNeish 1989; Sayles 1983). Approximately 3500 years ago, agriculture appears in the region. Evidence from Late Archaic sites, however, indicates that wild food sources continued to dominate the diet. By ca. 3000 B.P. agriculturally oriented, aceramic, villages were beginning to appear in the Tucson Basin.

By about AD 400, Formative period agriculturists were living in pithouse villages throughout the area and producing ceramics. Within the study area, the Formative period is represented by two distinct cultural complexes, the Mogollon on the east and the Hohokam on the west.

The Mogollon culture is the Formative period manifestation in southern New Mexico and is divided into two subareas, the Jornada and the Mimbres (Martin 1979; Stuart and Gauthier 1981). The Jornada Mogollon subarea encompasses southeastern and south-central New Mexico, southwestern Texas, and extends into northern Chihuahua. The Mimbres branch of the Mogollon is located primarily in the Mimbres Valley region of southwestern New Mexico extending south around Deming and into northern Chihuahua. Although similar, these subdivisions are distinguished by different developmental trajectories, ceramic styles, and other material traits.

In southern Arizona, the Formative period is represented by the Hohokam (Gumerman 1991; Haury 1976). The Hohokam developmental trajectory has parallels to the Mogollon, but is distinguished by a distinct ceramic tradition and other material and organizational attributes. The Hohokam and Mogollon spheres overlapped and merged in southeastern Arizona giving rise to the Dragoon Complex and San Simon Branch of the Mogollon (Bronitsky and Merritt 1986).

By about AD 1450, the Mogollon and Hohokam fade from the archaeological record. One century later, at the time of historic contact, Protohistoric Apache groups occupied the eastern portion of the study area. These nomadic hunter-gathers moved into the region subsequent to the abandonment by the Mogollon. Further west, the Sobaipuri and Pimas continued a modified version of the agricultural lifeway of the Hohokam, their potential ancestors.

The Spanish entrada in the mid 16th century represents the beginning of the historic period. The Spanish dominated the southern Southwest until 1821 when Mexico gained independence from Spain. Mexico's control of New Mexico was short-lived and in 1848 the United States of America took control of the region. Commercial ranching, mining, and homestead expansion continued throughout the American period. In 1912 both New Mexico and Arizona acquired statehood.

Cultural Resources Identified in Link Two

File searches were conducted in Texas, New Mexico, and Arizona. A file search was conducted by the Texas Archaeological Research Laboratory for the Texas portion of the ROW and based on the results, the Texas SHPO, Mr. F. Lawrence Oaks, rendered a decision that no further work was required for this project.

Based on a pre-field file search at the BLM and New Mexico State Historic Preservation Division, 310 cultural resource sites have been recorded within one mile of either side of the ROW in New Mexico. Of that number, 52 sites were located within 100 meters of the ROW, 12 sites were crossed by the ROW and subject to field recording, and two sites, which appeared to be located within the ROW, could not be relocated.

A file search at the Arizona State Museum resulted in the identification of 173 previously recorded cultural resource sites within one mile either side of the ROW. Of that number, 16 sites were located within 100 meters of the ROW, six sites were crossed by the ROW and subject to field recording, and one site, which appeared to be located within the ROW, could not be relocated.

An intensive inventory was conducted for the 320-mile long project ROW; and power lines, new access roads, and new Op Amp facility sites were surveyed as well. The existing ROW varied in width from 16.5 feet on private lands to 40 feet on public land. A total of 82 unrecorded sites were identified and documented during the survey. 19 previously recorded sites within the ROW were also relocated and evaluated. 196 isolated occurrences were documented. The 101 sites include historic sites (23), prehistoric sites (59), and multicomponent historic/prehistoric sites (17). Historic site types and features include homesteads, railroads, trash scatters, roads, a mine, a rock alignment, and two communication lines. Prehistoric sites dating from Archaic through Protohistoric periods include limited activity locales, camps, field houses, and probable villages as indicated by artifact scatters (flaked stone and ground stone artifacts, and/or ceramics), burned rock scatters, burned caliche scatters, hearths, and roasting features.

Of the 101 sites, 92 sites are recommended as eligible or potentially eligible to the NRHP. These include 19 historic sites, 55 prehistoric sites, and 18 multicomponent sites.

3.2.4.2 Impacts on Cultural Resources

Cultural resources are non-renewable and easily damaged. Damage can occur through ground disturbance, casual site visitation, and/or theft and vandalism. The potential for unauthorized collection of artifacts, minor displacement of artifacts by vehicles, and other adverse effects to cultural resources increases with additional work within the ROW. Direct impacts on cultural resources can occur as a result of development activity, including construction and maintenance. An undertaking is regarded as having an effect on a cultural property if it alters any of the characteristics that qualify it for inclusion in the NRHP.

The ROW has been in existence since 1948 with two cable lines already in place, one placed in 1948 and the other in 1987. Cultural resource studies were not conducted for the earlier cable placements. The sites identified during this study have been previously subject to construction and maintenance activities and have received some level of impact. Direct physical impacts on culturally significant and potentially significant sites would occur during ground disturbing activities related to this project. Impacts would be reduced to low levels through implementation of measures described in the project description of this EA and a treatment plan, developed in cooperation with BLM Archaeologists, SHPOs, and interested tribes.

Table 3-14 contains a summary of the cultural resources identified within the APE.

Table 3-14
Cultural Resources Documented – Link Two

Agency No.	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted*
NEW MEXICO						
LA 129785	Communications cable	Varies	Eligible: d	ROW parallels site across the state	No adverse effect	Archival research
LA 130169	Old Southern Pacific railroad grade segment	Private	Eligible: d	ROW crosses site; the cable conduit will be installed via a bore under the site	No adverse effect	Archival research
LA 129524	Jornada Mogollon coppice dune sherd and lithic artifact and burned rock scatter	BLM	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129523	Jornada Mogollon coppice dune sherd and lithic scatter	BLM	Eligible: d	ROW bisects site; moderate density artifact scatter in ROW; subsurface cultural remains noted, but extent and density unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129532	Archaic(?) and Jornada Mogollon coppice dune lithic artifact, sherd, and burned rock scatter	BLM	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129531	Jornada Mogollon coppice dune lithic artifact and sherd scatter	BLM	Eligible: d	ROW crosses edge of site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129530	Jornada Mogollon coppice dune lithic artifact and sherd scatter	BLM	Eligible: d	ROW cuts through site; sparse surface scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129529	Jornada Mogollon coppice dune lithic artifact and sherd scatter	BLM	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted

Table 3-14
Cultural Resources Documented – Link Two

Agency No.	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted*
LA 56032	Archaic(?) and Jornada Mogollon coppice dune flaked and ground stone, sherd, and burned caliche scatter with hearth	BLM	Eligible: d	ROW cuts through site; sparse surface scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 56050	Jornada Mogollon coppice dune sherd, lithic artifact, and burned caliche scatter	BLM	Eligible: d	ROW crosses edge of site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 130170	Old Southern Pacific railroad grade segment	BLM/Private	Eligible: d	ROW crosses site; ROW will cross the site perpendicular to the long axis within a previously disturbed area	No adverse effect	Archival research
LA 129528	Jornada Mogollon coppice dune sherd, lithic artifact and burned caliche scatter	BLM	Eligible: d	ROW cuts through site; sparse surface scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 49336	Large Archaic(?) and Jornada Mogollon dune field sherd and lithic scatter with hearths	BLM/Private	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Adverse effect	Excavation units; trench ROW, as warranted
LA 86793	Jornada Mogollon coppice dune sparse sherd and lithic scatter	Private	Not eligible: Poor integrity	ROW runs along edge of site; few surface artifacts within the ROW and Impact to site is negligible	No adverse effect	No further work
LA 129525	Multicomponent historic artifact scatter with features and unknown prehistoric coppice dune lithic artifact scatter	Private	Eligible: d	ROW cuts through site; sparse surface scatter in ROW, presence and extent of subsurface cultural deposits unknown	No adverse effect	Archival research
LA 66627	Possibly Paleoindian and Jornada Mogollon lithic artifact, sherd, and burned rock scatter	BLM	Eligible: d	ROW crosses edge of site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted

Table 3-14
Cultural Resources Documented – Link Two

Agency No.	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted*
LA 66630	Jornada Mogollon lithic artifact, sherd, and burned rock scatter	BLM	Eligible: d	ROW crosses edge of site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129533	Jornada Mogollon coppice dune sherd, lithic artifact, and burned rock scatter	BLM	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129536	Jornada Mogollon coppice dune sherd, lithic artifact, and burned caliche scatter	BLM	Eligible: d	ROW cuts through site; sparse surface scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129535	Jornada Mogollon coppice dune sherd, lithic artifact, and burned caliche scatter	BLM	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129534	Extensive Jornada Mogollon coppice dune sherd, lithic artifact, and burned caliche scatter	BLM	Eligible: d	ROW cuts through site; sparse surface artifact and scatters within ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Excavate units; trench ROW, as warranted
LA 129546	Unknown prehistoric coppice dune burned caliche and lithic artifact scatter	State	Eligible: d	ROW cuts through site; sparse artifact scatter in ROW, subsurface cultural remains noted, but extent and density unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129540	Unknown prehistoric coppice dune burned caliche and lithic artifact scatter	State	Eligible: d	ROW cuts through site; sparse artifact scatter in ROW, subsurface cultural remains noted, but extent and density unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129545	Jornada Mogollon coppice dune sherd, lithic artifact, and burned caliche scatter	State	Eligible: d	ROW cuts through site; sparse surface scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted

Table 3-14
Cultural Resources Documented – Link Two

Agency No.	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted*
LA 129544	Unknown prehistoric coppice dune burned caliche and lithic artifact scatter	State	Eligible: d	ROW cuts through site; sparse surface scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129541	Unknown prehistoric coppice dune burned caliche and lithic artifact scatter	State/BLM	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129542	Extensive unknown prehistoric coppice dune burned caliche and lithic artifact scatter	BLM	Undetermined	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129547	Unknown prehistoric coppice dune burned caliche and lithic artifact scatter	BLM	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	No adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129543	Unknown prehistoric and Jornada Mogollon coppice dune burned caliche, lithic artifact, and sherd scatter	BLM	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129538	Extensive multicomponent unknown prehistoric and Jornada Mogollon coppice dune lithic artifact, sherd, and burned rock scatter and historic artifact scatter	BLM	Eligible: d	ROW cuts through site; sparse artifact scatter in ROW, subsurface cultural remains noted, but extent and density unknown	Potential adverse effect	Excavation units and trench ROW
LA 129539	Multicomponent unknown prehistoric lithic artifact scatter and hearth and historic refuse dumping locale	Private	Eligible: d	ROW cuts through site; sparse surface scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Test units and excavation units or trench ROW, archival research
LA 129537	Historic railroad siding site and possibly Protohistoric artifact scatter	Private	Eligible: d	ROW cuts through site; sparse surface scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW, archival research

Table 3-14
Cultural Resources Documented – Link Two

Agency No.	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted*
LA 129548	Unknown prehistoric flaked and ground stone artifact scatter with features	BLM	Eligible: d	ROW cuts through site; sparse surface scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129549	Jornada Mogollon sherd and lithic scatter	BLM	Eligible: d	ROW cuts through site; sparse surface scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Test units and excavation units or trench ROW, as warranted
LA 129550	Unknown prehistoric flaked and ground stone artifact scatter	BLM	Eligible: d	ROW cuts through site; sparse artifact scatter in ROW, subsurface cultural remains noted, but extent and density unknown	Potential adverse effect	Test units and excavations or trench ROW, as warranted
LA 129551	Jornada Mogollon flaked and ground stone lithic and sherd scatter with hearths	BLM	Eligible: d	ROW crosses edge of site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129552	Jornada Mogollon sherd and lithic artifact scatter with hearth	BLM	Eligible: d	ROW cuts through site; sparse surface scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 126145	Historic communications line	Private/City of Deming	Eligible: d	ROW crosses site; ROW will cross the site perpendicular to the long axis within a previously disturbed area	No adverse effect	Archival research
LA 129553	Jornada Mogollon and unknown prehistoric coppice dune flaked and ground stone artifact and sherd scatter with hearth	BLM	Eligible: d	ROW cuts through site; sparse artifact scatter in ROW, subsurface cultural remains noted, but extent and density unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129555	Historic and unknown prehistoric artifact scatter	Private	Eligible: d	ROW bisects site; moderate density artifact scatter in ROW; subsurface cultural remains noted, but extent and density unknown	Potential adverse effect	Test units, excavation units if warranted, surface collection

Table 3-14
Cultural Resources Documented – Link Two

Agency No.	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted*
LA 129556	Low-density unknown prehistoric lithic artifact and burned rock scatter	Private	Eligible: d	ROW cuts through site; sparse surface scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 54811	Multicomponent extensive Archaic lithic artifact scatter and historic refuse dump	Private/State/BLM	Eligible: d	ROW cuts through site; sparse surface scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Test units, excavation units if warranted, intensive surface collection
LA 129554	Multicomponent extensive Archaic and Mogollon midden deposits and historic refuse scatter	Private	Eligible: d	ROW bisects site; moderate density artifact scatter in ROW; subsurface cultural remains noted, but extent and density unknown	Adverse effect	Excavation units, Trench ROW, as warranted
LA 54812	Extensive Archaic and Mimbres Mogollon sherd, lithic artifact, and burned rock scatter	Private	Eligible: d	ROW bisects site; moderate density artifact scatter in ROW; subsurface cultural remains noted, but extent and density unknown	Adverse effect	Excavation units, Trench ROW, as warranted
LA 129557	Historic trash scatter	Private	Eligible: d	ROW runs along edge of site; few surface artifacts within the ROW and impact to site is negligible	Adverse effect	Additional artifact documentation
LA 129558	Mimbres Mogollon sherd and lithic scatter and historic artifact scatter	Private	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129561	Mimbres Mogollon sherd and lithic scatter and historic artifact scatter	Private	Not eligible: Poor integrity	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	No adverse effect	No further work
LA 129559	Unknown prehistoric lithic artifact scatter	Private	Not eligible: Poor integrity	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	No adverse effect	No further work

Table 3-14
Cultural Resources Documented – Link Two

Agency No.	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted*
LA 129560	Archaic and Mimbres Mogollon sherd and lithic scatter	Private	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 59652	Extensive multicomponent Mimbres Mogollon sherd and lithic scatter and historic well locale	Private	Eligible: d	ROW cuts through site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 54814	Multicomponent Mimbres Mogollon sherd and lithic scatter and historic school locale	Private	Eligible: d	ROW bisects site; moderate density artifact scatter in ROW; subsurface cultural remains noted, but extent and density unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129562	Mimbres Mogollon sherd and lithic artifact and burned rock scatter with features	Private	Eligible: d	ROW bisects site; moderate density artifact scatter in ROW; subsurface cultural remains noted, but extent and density unknown	Potential adverse effect	Excavation units, Trench ROW, as warranted
LA 129564	Multicomponent unknown prehistoric flaked and ground stone artifact and burned rock scatter and historic artifact scatter	BLM	Eligible: d	ROW cuts through site; sparse artifact scatter in ROW, subsurface cultural remains noted, but extent and density unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129563	Jornada Mogollon flaked and ground stone artifact, sherd, and burned rock scatter with hearth	BLM	Eligible: d	ROW cuts through site; sparse artifact scatter in ROW, subsurface cultural remains noted, but extent and density unknown	Potential adverse effect	Test units, excavation units if warranted, trench ROW
LA 108780	Historic ranching-related locale	Private	Eligible: d	ROW runs along edge of site; few surface artifacts within the ROW and Impact to site is negligible	No adverse effect	Archival research

Table 3-14
Cultural Resources Documented – Link Two

Agency No.	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted*
LA 129567	Archaic flaked and ground stone artifact and burned rock scatter	Private	Eligible: d	ROW bisects site; moderate density artifact scatter in ROW; subsurface cultural remains noted, but extent and density unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129565	Unknown prehistoric flaked and ground stone artifact and burned rock scatter	Private	Eligible: d	ROW bisects site; moderate density artifact scatter in ROW; subsurface cultural remains noted, but extent and density unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129566	Multicomponent prehistoric unknown flaked and ground stone artifact and burned rock scatter and historic refuse dump	State	Eligible: d	ROW parallels site across site	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 129568	Archaic(?) and Mogollon flaked and ground stone artifact and burned rock scatter	State	Eligible: d	ROW cuts through site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
LA 130171	Historic railroad segment	Private	Eligible: a	ROW crosses site; ROW will cross the site perpendicular to the long axis within a previously disturbed area	No adverse effect	No further work
LA 129570	Historic trash scatter and GLO road locale	BLM	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; no potential for subsurface cultural deposits	No adverse effect	Archival research
LA 129569	Historic GLO road locale	BLM	Eligible: a	ROW crosses site; ROW will cross the site perpendicular to the long axis within a previously disturbed area	No adverse effect	No adverse impact, no further work
LA 129571	Unknown prehistoric roasting facility and lithic artifacts	BLM	Eligible: d	ROW runs along edge of site; few surface artifacts within the ROW and impact to site is negligible	Potential adverse effect	Avoid by restricting ROW

Table 3-14
Cultural Resources Documented – Link Two

Agency No.	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted*
ARIZONA						
AZ CC:12:48 (ASM)	San Simon branch Mogollon sherd and lithic scatter	State of Arizona	Eligible: d	ROW cuts through site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ CC:11:62 (ASM)	Multicomponent prehistoric sherd scatter and historic trash scatter	Private	Potentially eligible	ROW cuts through site; sparse artifact scatter in ROW, little potential for subsurface cultural deposits	No adverse effect	Monitor
AZ CC:10:99 (ASM)	Ceramic period lithic, sherd, and burned rock scatter	BLM	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ CC:10:100 (ASM)	Archaic flaked and ground stone scatter	Private	Likely: landowner denied access to record site off of ROW	ROW cuts through site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ CC:10:101 (ASM)	Ceramic period lithic, sherd, and burned rock scatter	State of Arizona	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ EE:3:53 (ASM)	Extant Southern Pacific Railroad	State of Arizona; Private; Unknown	Eligible: a	ROW crosses site; the cable conduit will be installed via bore under the site	No adverse effect	No further work
AZ CC:10:102 (ASM)	Unknown prehistoric flaked stone, ground stone, and burned rock scatter with possible historic road segment and recent hearths	Private	Potentially eligible: d	ROW cuts through site; sparse surface artifact scatter in ROW, presence and extent of subsurface unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ CC:10:103 (ASM)	Historic homestead/commercial enterprise	State of Arizona	Eligible: a, d	ROW cuts through site; historic feature within ROW, subsurface cultural deposits unlikely	Potential adverse effect	Historic records search

Table 3-14
Cultural Resources Documented – Link Two

Agency No.	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted*
AZ CC:10:104 (ASM)	Unknown prehistoric lithic scatter	State of Arizona	Not eligible: limited data potential	ROW bisects site; sparse surface artifact scatter in ROW, no potential for subsurface cultural deposits	No adverse effect	No further work
AZ CC:10:105 (ASM)	Unknown prehistoric flaked and ground stone scatter	State of Arizona	Potentially eligible: testing needed to assess potential subsurface deposits	ROW cuts through site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Test units
AZ CC:9:23 (ASM)	Historic artifact scatter and fence	State of Arizona	Not eligible: Poor integrity, limited data potential	ROW bisects site; sparse surface artifact scatter in ROW, no potential for subsurface cultural deposits	No adverse effect	No further work
AZ CC:9:24 (ASM)	Ceramic period lithic, sherd, and burned rock scatter	State of Arizona	Potentially eligible: d Testing necessary to evaluate potential buried cultural deposits	ROW cuts through site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Excavation units and trench ROW
AZ CC:9:25 (ASM)	Unknown Prehistoric lithic scatter with hearth	State of Arizona	Potentially eligible: d Testing necessary to evaluate potential buried cultural deposits	ROW bisects site; hearth feature and sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Excavation units and trench ROW
AZ CC:9:26 (ASM)	Multicomponent Archaic and Ceramic period lithic and sherd scatter with feature and historic refuse scatter	Private	Eligible: d	ROW cuts through site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ CC:9:27 (ASM)	Unknown prehistoric lithic scatter	Private	Potentially eligible: d	ROW cuts through site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted

Table 3-14
Cultural Resources Documented – Link Two

Agency No.	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted*
AZ CC:13:52 (ASM)	Archaic and Hohokam lithic and sherd scatter with features	State of Arizona	Eligible: d	ROW cuts through site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ CC:13:53 (ASM)	Ceramic period sherd and lithic scatter with hearth	Private	Eligible: d	ROW bisects site; hearth feature and sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Adverse effect	2 x 2 unit over hearth and trench ROW
AZ BB:16:30 (ASM)	Homestead and mining locale	Private	Eligible: a, d	ROW bisects site; sparse surface artifact scatter in ROW, no potential for subsurface cultural deposits	Potential adverse effect	Restrict ROW to disturbed area
AZ BB:16:36 (ASM)	Multicomponent Dragoon complex lithic and sherd scatter with features and historic ranch complex	Private	Potentially eligible: a, d	ROW cuts through site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Excavation units and trench ROW as warranted
AZ BB:16:31 (ASM)	Dragoon complex lithic and ceramic scatter with features	Private	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Test units, excavation units, and trench ROW as warranted
AZ BB:16:32 (ASM)	Dragoon complex lithic and ceramic scatter with features	Private	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Test units, excavation units and trench ROW as warranted
AZ BB:16:35 (ASM)	Multicomponent Dragoon complex lithic and sherd scatter with features and historic school complex	Private	Eligible: a, d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Test units, trench ROW as warranted
AZ BB:16:33 (ASM)	Archaic and Ceramic period lithic and sherd scatter with hearth	Private	Eligible: d	ROW cuts through site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Test units, excavation units, trench ROW if warranted

Table 3-14
Cultural Resources Documented – Link Two

Agency No.	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted*
AZ BB:16:34 (ASM)	Historic homestead	Private	Potentially eligible: a, d	ROW runs along edge of site; no features are within the ROW and impact to site is negligible	Potential adverse effect	No impact if ROW is restricted; avoid
AZ EE:3:43 (ASM)	Abandoned railroad grade; possibly old stage route	Private	Eligible: a, d	ROW crosses site; ROW will cross the site perpendicular to the long axis within a previously disturbed area	No adverse effect	No further work
AZ EE:3:69 (ASM)	Historic rock alignment	State of Arizona	Not eligible: Limited data potential	ROW cuts through site; historic feature within ROW, subsurface cultural deposits unlikely	No adverse effect	No further work
AZ EE:2:485 (ASM)	Historic artifact scatter	State of Arizona	Potentially eligible: d	ROW runs along edge of site; no features are within the ROW and impact to site is negligible	Potential adverse effect	Restrict ROW to disturbed area
AZ EE:2:489 (ASM)	Unknown Prehistoric lithic scatter	State of Arizona	Potentially eligible: d	ROW bisects site; sparse surface artifact scatter in ROW, no potential for subsurface cultural deposits	Potential adverse effect	Restrict ROW to disturbed area
AZ EE:2:51 (ASM)	Archaic and Hohokam ceramic and lithic scatter	State of Arizona	Eligible: d	ROW bisects site; sparse artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ EE:2:44 (ASM)	Hohokam sherd and lithic scatter with feature	State of Arizona	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Excavation units; trench ROW
AZ BB:14:673 (ASM)	Historic Pantano Road, commercial establishment, and trash dump (CCC/railroad camp?)	State of Arizona/ Pima County	Eligible: a, d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Restrict ROW; records search, in field recording, mapping
AZ BB:14:671 (ASM)	Pantano Road Bridge	Pima County	Eligible: a, c	ROW crosses site; cable conduit will be installed along a girder, site integrity will not be affected, visual impacts will be ameliorated by camouflage cover	No adverse effect	No impact; no further work

Table 3-14
Cultural Resources Documented – Link Two

Agency No.	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted*
AZ BB:14:674 (ASM)	Multicomponent Hohokam field house/habitation and historic road, railroad grade, and trash scatter	Pima County	Eligible: d	ROW cuts through site; sparse surface artifact scatter in ROW, presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Restrict ROW to disturbed area; trench centerline
AZ BB:14:677 (ASM)	Abandoned Southern Pacific Railroad grade	Pima County	Eligible: a, d	ROW crosses site; ROW will cross the site perpendicular to the long axis within a previously disturbed area	No adverse effect	Restrict construction to ROW; archived research, photo documentation
AZ BB:14:675 (ASM)	Historic homestead	Private	Not eligible: Poor integrity	ROW bisects site; sparse surface artifact scatter in ROW, no potential for subsurface cultural deposits	No adverse effect	No further work
AZ BB:13:655 (ASM)	Hohokam sherd and lithic scatter with features	State of Arizona	Eligible: d	ROW bisects site; sparse surface artifact scatter in ROW; presence and extent of subsurface cultural deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ BB:13:577 (ASM)	Abandoned railroad grade	Private	Eligible: a	ROW crosses site; ROW will cross the site perpendicular to the long axis within a previously disturbed area	No adverse effect	No further work
AZ BB:5:123 (ASM)	Historic Oracle-Tucson transmission line ROW	City of Tucson	Not eligible: Poor integrity	Site dismantled, no features in ROW	No adverse effect	No further work

*Recommendations are predicated on the assumption that avoidance, the primary recommendation, is not feasible.

3.2.4.3 Native American Consultations

As part of the requirements under NEPA, the National Historic Preservation Act, and the American Indian Religious Freedom Act, notification and requests for comment were sent to appropriate Native American Tribes by the BLM. Native American tribes in the vicinity of the project, or those who expressed interest in this type of project, were contacted to explore concerns and identify traditional cultural properties. Tribes were notified during initial stages of the project with continued follow-up. A MOA was also circulated for tribe participation.

No information specific to Native American or traditional use in the project area has been received. A summary of the tribal contacts and consultations is contained in Section 4.

3.2.5 Visual Resources – Link Two

3.2.5.1 Affected Environment

The objective of the visual resources investigation is to identify and describe important visual resources that could be affected by the construction of the proposed project. Important visual resources are defined for this study as visually sensitive use areas where the maintenance of the surrounding visual environment is important to people's enjoyment of using an area, and unique or unusual landscapes having natural scenic value. The study area is defined to include landscapes that viewers may travel, recreate, or reside where existing views may potentially be affected by the Proposed Action.

The project is located within and adjacent to public land administered by the BLM Las Cruces, Safford, and Tucson Field Offices. Visual resources are described using federal guidelines established by the BLM Manual, Section 8400 VRM system (BLM 1984). Under the VRM system, the visual resource baseline investigation has three major components: scenic quality, visual sensitivity, and visual distance zones. Based on these three factors, landscape classifications have been established. VRM classes are objectives by which the visual resources of an area are managed.

Each VRM class describes a different degree of modification allowed in the basic elements (line, form, color, and texture) of the landscape. Most of the project area is VRM Class III where the level of change to the characteristic landscape should be moderate. Project activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. A few portions of the project area are VRM Class II where the level of change to the characteristic landscape should be low. VRM Class II areas include the northern extent of the Pyramid Mountains and Peloncillo Mountains. Class II dictates that project activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. Field verification of VRM information was conducted during the winter and spring of 2000.

The study area is located in the south central portion of the Mexican Highland section of the Basin and Range Physiographic Province and the Chihuahuan and Sonoran Desert Plains. The Mexican Highland is characterized by a pattern of isolated mountain ranges separated by aggraded desert plains. The province as a whole is one of the driest in the United States. The desert plains contain scattered areas of brush and grasses. Several playas are located near the New Mexico-Arizona state line.

Clear skies with broad open landscape characterize the regional landscape setting of the western tip of Texas, southern New Mexico, and eastern Arizona. This type of landscape allows for long viewing distances. Consequently, maintenance of visual resources is a concern from nearby and distant viewing locations, including views from adjacent public land with high visual resource values, designated wilderness or WSA, recreation areas, major transportation routes, and population centers.

3.2.5.2 Impacts on Visual Resources

The assessment of visual impacts was based upon methodology described in the BLM Visual Contrast Rating Handbook (BLM Manual Handbook 8431-1) in its visual contrast rating system. Effects to visual resources were assessed for the construction, operation, and closure of the proposed project. Relative value of the visual environment is defined by BLM VRM classes.

The extent to which the proposed project would affect the visual quality depends upon the amount of visual contrast created between the proposed facilities and the existing landscape elements (form, line, color, and texture) and features (land surface, vegetation, and structures). Assessing the project's contrast in this manner indicates the severity of potential impacts and guides the development of mitigation measures so the VRM objectives would be met. Impacts were based upon the VRM classification of land crossed by the proposed project. The proposed project is located on VRM Class II and III lands where proposed project facilities and activities may be visible, but not dominate the landscape.

Short-term construction impacts would result from the Proposed Action. For most of the proposed route, actual ground disturbance would be less than one foot in width. The impacts on the VRM Class II and Class III landscapes would be under the threshold-defined by the Classes. Short-term contrasts in line, color, form, and texture resulting from construction vehicles and activities would occur. Some travelers may briefly notice the construction activities. For travelers along I-10 in the vicinity of Texas Canyon area of the Dragoon Mountains, the lighter color and thin line contrast of the route disturbance may draw brief visual attention to the casual observer, particularly when viewed in hilly terrain in the middleground view distance zone. A long-term additive impact of a line contrast of the disturbed area would result in low additive impact on the landscape.

3.2.6 Land Use and Range Resources – Link Two

3.2.6.1 Affected Environment

This section provides a general description of the major land uses, range activities and land use designations occurring within the project area for Link Two. The land use inventory was compiled through review of federal, state, and local land management/planning documents; maps supplied by federal, state and local agencies; interviews and telephone conversations with land use planners and livestock grazing specialists. Major sources included the BLM Mimbres (April 1993) and Safford (August 1991) RMPs and USGS 7.5-minute topographic quadrangle maps.

The purpose of this analysis is to identify and describe existing land uses and designations in the project area for Link Two that may be affected by the Proposed Action. Land use categories discussed in this section include land jurisdiction and management, utilities and ROWs, land use plans, and range resources.

Land Jurisdiction and Management Plans

The project area is located in portions of El Paso County, Texas; Dona Ana, Luna, Grant and Hidalgo counties, New Mexico; Cochise and Pima counties, Arizona. Land jurisdiction of the utility corridors includes private, state, and federal lands, including public land managed by the BLM Las Cruces and Safford Field Offices. There is no public land managed by the BLM Tucson Field Office that is crossed by Link Two. Approximately 18.3 percent of Link Two is located on federal land.

The BLM RMPs provide the framework for land use direction on public land managed by the BLM. Land designations are based upon certain resources that are given management emphasis. These designations also allow for multiple resource use to the extent that such multiple use is consistent with the overall resource emphasis of the area. The project is located within an existing utility corridor on both public and private land. The BLM RMPs encourage the use of existing corridors on public land that includes existing facilities and/or ROWs.

The project area contains several sections of land managed or under jurisdiction by the states of New Mexico and Arizona. These lands are open rangelands. Land use on private lands within El Paso, Dona Ana, Luna, Grant, Hidalgo, Cochise and Pima counties is subject to county zoning regulations. The Departments of

Planning and Zoning of these counties administer the regulations. Private land within the project area is used for a variety of purposes including residential, commercial, industrial, agriculture, and recreational. Individual residences are concentrated in the towns of El Paso, Sunland Park, Deming, Lordsburg, San Simon, Bowie, Willcox, Benson, and Tucson. Except for El Paso and Tucson, commercial businesses are concentrated mostly within the central business areas along US highways routed through the towns.

Livestock Grazing

More than 90 percent of public land can be grazed by livestock. Livestock grazing occurs on public land through allotment; 23 allotments occur within the Las Cruces Field Office and one allotment is crossed in the Safford Field Office. All are yearly allotments.

3.2.6.2 Impacts on Land Use and Range Resources

Impacts on land and range resources are expected to be low to none. The proposed project facilities conform to BLM's management direction regarding location and use in existing ROW. Impacts on range and livestock grazing would be minimal.

Minor additive effects would occur to community development and sites. During construction, towns may incur short-term traffic delays or detours where construction activities are present. Short-term construction impacts may result from traffic being detoured around construction zones where the route crosses or parallels roads. In Sunland Park, one traffic lane of the four-lane State Highway 273 would be temporarily closed. Traffic Controls Plans would be developed and submitted to BLM, state highway departments, counties, and traffic departments of municipalities prior to construction. Vehicles travelling on access roads would increase dust in localized areas. To reduce the effects, construction monitors may require site-specific mitigation that may include watering the roads and controlling the speed of vehicles on the access roads.

3.2.7 Recreation and Wilderness – Link Two

3.2.7.1 Affected Environment

Public land provides recreational opportunities available by providing unrestricted settings for a variety of dispersed recreational activities. Activities that occur on public land, include hunting, camping, rockhounding/collecting, picnicking, nature study, viewing wildlife, viewing cultural/historical sights, sightseeing, photography, and back country vehicle use, among others. All of these activities are dispersed throughout the study area.

The WSA nearest the Las Cruces Field Office, the Aden Lava Flow WSA, is located about 20 miles southeast of Las Cruces and adjacent to the proposed route. One segment of the route lies along the edge of the wilderness for about three miles. Encompassing the Malpais, the Aden Lava Flow WSA contains 25,287 acres of land with access roads cherry stemmed into and New Mexico State Land blocked out of the WSA. Recreation opportunities include camping, backpacking, hiking, horseback riding, and hunting. The next nearest WSA is the Florida Mountains WSA. The WSA contains 22,336 acres and is located approximately six miles south of the proposed route near Deming.

3.2.7.2 Impacts on Recreation and Wilderness

Direct effects to recreational resources would occur if construction or operation of the project resulted in the degradation of recreational or wilderness resource values within the study area. Indirect effects would occur if construction activities altered recreation use patterns, recreation demand, or access to use near the proposed project.

The following considerations were used to identify effects to recreational and wilderness resources: (1) Project-related changes that alter or otherwise physically affect established, designated, or planned recreation or wilderness areas or activities; (2) Project-related changes that affect officially adopted policies or goals for

recreational or wilderness land management of recognized organizations or agencies; (3) Project-related changes that increase or decrease accessibility to areas established, designated, or planned for recreation or wilderness; and (4) Project-related changes that affect duration, quantity, and quality of impact on recreational or wilderness resources.

The Proposed Action would result in minimal impacts on recreation and wilderness because the project proposed would be a relatively short-term construction period (several days) and would not require a large increase of work force population. Public land affected by the project would still be available for dispersed recreation activities. As a result of the Proposed Action, temporary delays affecting public ingress/egress into public land across the project could be expected. Minimal indirect effects would occur to or in the Aden Lava Flow WSA resulting from short-term construction noise and dust generated from construction traffic.

3.2.8 Socioeconomics – Link Two

3.2.8.1 Affected Environment

Socioeconomic impacts depend on the construction workforce size and whether workers (and family members) choose to in-migrate to the project area. If new workers are expected in the area, impacts can depend on the adequacy of existing facilities (such as housing supply) or public services. The criterion of adverse impact is therefore measured in terms of worker influx and increased demand on community services.

During peak construction, it is expected that there would be about 24 to 25 workers covering three spreads located approximately 100 miles apart. The length of the construction schedule is expected to be about eight months.

3.2.8.2 Socioeconomic Impacts – Link Two

Workers based outside the project area would be used for construction. Some beneficial socioeconomic impacts would be generated from workers' spending in El Paso, Sunland Park, Deming, Lordsburg, San Simon, Bowie, Willcox, Benson and Tucson. Most of the workforce would be housed temporarily in these communities and a portion of their income and expenses would be respend locally, generating secondary income to the affected communities. Roughly, secondary income (over the long term) could equal direct income for a combined sum (direct plus secondary) of one-half million dollars.

Because the construction work force would be small (with no permanent immigration to the area), negative effects are not expected for such public services as law enforcement or fire protection. Construction of the fiber optic line is not expected to affect noticeably hotel vacancy rates.

3.2.8.3 Environmental Justice

Hispanic and low-income populations comprise much of the total population in the Link Two study area, however disproportionate impacts on these groups from the Proposed Action are unlikely. Low-income populations do not appear to be disproportionately concentrated along or around the project route and facilities. In addition, decisions of route alternatives were based on location of existing AT&T ROW, constructability, compatibility with jurisdiction objectives, and environmental sensitivities. The AT&T ROW was obtained and originally constructed more than 50 years ago. Since that time, most of the communities have been built up around the route. Op Amp facility locations are in rural areas away from minorities and low-income populations.

3.2.9 Water Resources – Link Two

3.2.9.1 Affected Environment

The climate in the project area is arid to semi-arid, with precipitation in the range of 8 to 16 inches per year and pan evaporation of approximately 100 inches per year. A large portion of the project area falls within the Chihuahuan desert. Soils in the project area are a mixture of coarse-grained soils that allow rapid infiltration and soils that form cemented pans that promote rapid runoff. The washes, streams, and rivers in the project area, with the exception of the Rio Grande River and Cienega Creek, are ephemeral. That is, they flow only in response to precipitation events. Average annual runoff is less than one inch. In most areas the average annual runoff is on the order of one-quarter of an inch.

Low precipitation combined with high evaporation rate provides only a small annual recharge to groundwater. In populated areas, groundwater withdrawals far exceed groundwater recharge resulting in steadily declining groundwater levels over time. There are two main aquifer systems in the project area: (1) the Basin and Range aquifer system in Arizona, and (2) the Rio Grande aquifer system in New Mexico.

There are two major ongoing programs for evaluation of water quality: (1) the Clean Water Action Plan program and (2) CWA Section 303(d) listing of waters not meeting water quality standards. Under the Clean Water Action Plan program, states, and tribes have been providing UWAs. Each UWA has two components:

(1) Watershed Condition, which evaluates ambient water quality data, impacts on drinking water systems, contaminated sediments, and other factors. Based on a scoring process, watersheds are defined as “Watersheds with More Serious Water Quality Problems,” “Watersheds with Less Serious Water Quality Problems,” “Watersheds with Better Water Quality,” or “Watersheds with Insufficient Data.”

(2) Watershed Vulnerability, which evaluates aquatic species at risk, pollutant loads above limits, urban and agricultural runoff potential, population growth, and other factors. Based on a scoring process, watersheds are defined as “Watersheds with Higher Vulnerability to Pollution,” “Watersheds with Lower Vulnerability to Pollution,” or “Watersheds with Insufficient Data.”

Under Section 303(d) of the CWA, each state must prepare a list of waters that are not meeting applicable water quality standards. These lists are required to be submitted to EPA for review and approval in April of every even year (e.g. 1996, 1998). TMDLs are then established from the most recently approved list. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount is assigned among the pollutant's various sources.

In Arizona, the watersheds of the project area have been designated under the Clean Water Action Plan program as either “Less Serious Problems, Low Vulnerability” or “Insufficient Data.” The San Pedro River near Benson has been designated as a CWA Section 303(d) impaired water body because of fecal coliform, nitrates, and turbidity (Arizona Department of Environmental Quality 2000).

In New Mexico, the watersheds of the project area have been designated under the Clean Water Action Plan program as either “Less Serious Problems, Low Vulnerability” or “Insufficient Data,” with the exception of the El Paso-Las Cruces watershed, which has been designated as “More Serious Problems, Low Vulnerability.” The Rio Grande in the Las Cruces-El Paso area has been designated as a CWA Section 303(d) impaired water body. The major sources of pollutants in the watershed are agricultural non-point sources and municipal point sources (EPA 2000a; EPA 2000b, New Mexico Environment Department 1998).

3.2.9.2 Impacts on Water Resources

Measurable impacts on water resources would result if one or more of the following conditions occur:

- If, as a result of project activities, surface water was contaminated by storm water runoff from flash floods to levels above federal and state water quality standards.

- If, as a result of project activities, surface waters defined as “waters of the U.S. or wetlands area” (i.e., all rivers, permanent and intermittent streams, lakes, wetlands, and natural ponds) were degraded by dredged or fill material, or runoff characteristics or channel capabilities/geometry were changed.

Under the Proposed Action and corresponding resource protection measures, impacts on water resources are expected to be minimal. Sediment levels during runoff events are high under existing conditions, and project activities are not expected to increase these levels to any measurable degree. Placement of dredged or fill materials in "waters of the U.S." or wetlands area is not expected to occur under the Proposed Action. The project is permitted through the COE under a Nationwide 12 permit in New Mexico and an individual permit for Arizona.

3.2.10 Air Quality and Noise – Link Two

3.2.10.1 Affected Environment

The assessment of the existing air quality presented below is based on information obtained from EPA. The climatic data for the project area was compiled from climatic summaries prepared by the National Oceanic and Atmospheric Administration (NOAA). Baseline ambient noise levels were estimated using the relationship between population density and noise levels.

The project is located in the desert region of southwestern United States in an area that reflects fairly typical interior of arid and subtropical conditions. The region is subject to low precipitation amounts, low cloud cover, and low relative humidity resulting in mostly sunny conditions. Temperatures vary largely from late evening to afternoon as typical of desert environs due to the low humidity levels. Climatic conditions are described below for El Paso, Texas and Tucson, Arizona, which are at each end of Link Two.

In El Paso, July through September are the wettest months receiving a median 4.02 inches of precipitation per year. April is the driest month receiving an annual median 0.08 inches of precipitation. Median temperatures range from 42.3 degrees F in January to 82.3 degrees F in July. The median average temperature is 63.2 degrees F (NOAA, 1992). Annual median winds in El Paso are from the north at nine mph. Wind gusts can reach 86 mph (NOAA, 1998).

In Tucson, July through September are the wettest months receiving a median 5.69 inches of precipitation per year. May is the driest month receiving an annual median 0.07 inches of precipitation. Median temperatures range from 50.7 degrees F in January to 86.8 degrees F in July. The annual median temperature is 68.3 degrees F (NOAA, 1992a). Annual median winds in Tucson are from the southeast at eight mph. Wind gusts can reach upwards to 75 mph (NOAA, 1998).

Air Quality

EPA has established ambient air quality standards for the project area. These standards have been established for criteria pollutants including SO₂, CO, ozone, lead, PM₁₀, and NO₂. Areas that exceed the ambient air quality standards are classified as nonattainment. There are three nonattainment areas along Link Two including the El Paso area, the Sunland Park, New Mexico area, and areas in Tucson.

Portions of El Paso are classified as nonattainment for CO, ozone and PM₁₀. The areas are classified as moderate nonattainment for CO and PM₁₀ and serious nonattainment for ozone. The El Paso area is in attainment for all other criteria pollutants (40 CFR 81.334).

The Sunland Park area is classified as a moderate nonattainment area for ozone. This area is in attainment for all other criteria pollutants (40 CFR 81.332).

Portions of Tucson are classified as nonattainment for CO. The area is in attainment for all other criteria pollutants (40 CFR 81.303.)

Noise

Baseline noise levels in the project area were estimated for the more populated areas near El Paso, Tucson and for the rural areas between major population centers. The levels are based on the relationship between noise levels and population density. The population density and related noise levels are presented in Table 3-15. These relationships are presented because ambient noise monitoring was not conducted as part of this analysis.

The noise levels in this assessment are presented in terms of dBA. The human ear perceives lower frequencies differently than it perceives higher frequencies. The A-weighting scale de-emphasizes lower frequency sounds to better simulate human hearing.

The baseline noise levels presented in Table 3-15 are daytime and nighttime noise levels (L_{dn}) in dBA. The L_{dn} is a measurement of the equivalent sound level with a 10-decibel weighting applied to the nighttime hours of 10 p.m. to 7 a.m. A 10-decibel weighting is applied to nighttime hours because noise levels are perceived to be higher and more annoying during nighttime hours.

The population density in El Paso, Tucson, and other populated area along Link Two is estimated to be 6000 people per square mile, which would result in ambient noise levels of 60 dBA. The population throughout the rest of the Link Two project area likely ranges from 20 to 60 people per square mile, with associated ambient noise levels of 35 to 40 dBA. In areas between population centers, noise levels would be dominated by vehicle traffic along I-10.

Table 3-15 <i>Typical Average Day-Night Sound Levels for Various Population Densities^a—Link Two</i>		
Description	Population Density (People per Square Mile)	L_{dn} dBA
Rural (undeveloped)	20	35
Rural (partially developed)	60	40
Quiet Suburban	200	45
Normal Suburban	600	50
Urban	2000	55
Noisy Urban	6000	60
Very Noisy Urban	20000	65
^a For areas where there is no well-defined noise sources other than transportation noise. Source: National Academy of Sciences (NAS) 1977.		

3.2.10.2 Impacts on Air Quality and Noise

The environmental consequences were assessed for construction, operation and maintenance activities along the proposed corridor. The impacts are compared to US EPA significant impact levels and NAAQS for air quality impacts and the EPA CNEL for noise impacts. The Op Amp facilities, including the backup generators are existing facilities in El Paso and Tucson. Thus, there would not be additional environmental impacts from construction and operation of the sites in these two cities. Appendix H-4 contains backup information regarding this analysis. All Op Amp facilities meet local permitting requirements for Air Quality and Noise emissions.

Air Quality

The air quality in the project area during construction would be affected primarily by fugitive dust (particulate matter) during construction activities. Minimal emissions of gaseous pollutants such as nitrogen oxides, SO₂, and CO would also occur from the operation of construction equipment.

Air quality impacts from operation would occur mainly from the operation of diesel-fired backup generators. It is anticipated that each backup generator would run one hour per month for routine engine maintenance and approximately 10 hours per year during power outages. Emissions from the backup generators are estimated based on manufacturer emission data, the engine horsepower rating, and estimated annual hours of operation. Generator emissions are presented in Table 3-16 below.

Table 3-16 <i>Generator Emissions—Link Two</i>					
Pollutant	Emission Factor (gm/hp-hr)	Horsepower Rating	Operating Hours Per Year	EMISSIONS Lb/hr/Tons per Year	
Hydrocarbons	0.30	535	22	0.35	0.004
Nitrogen Oxides	9.25	535	22	10.9	0.120
CO	2.25	535	22	2.65	0.029
Particulate Matter	0.17	535	22	0.20	0.002
SO ₂	0.59	535	22	0.70	0.008

The emissions presented in Table 3-16 were input into the US EPA SCREEN3 dispersion model to determine the ambient air quality impacts from operation of the backup generators. SCREEN3 predicts a 1-hour average concentration. Concentrations for other averaging periods were calculated by multiplying the 1-hour concentration predicted by SCREEN3 by the following factors: 0.9 ± 0.1 for a 3-hour average concentration, 0.7 ± 0.2 for a 8-hour average concentration, 0.4 ± 0.2 for a 24-hour average concentration, and 0.08 ± 0.02 for an annual average concentration (EPA, 1992). The ambient air quality impacts for emissions from the backup generators predicted by the SCREEN3 model are compared to EPA significant levels and NAAQS in Table 3-17.

Table 3-17 <i>Ambient Air Quality Impacts—Link Two</i>			
Pollutant and Averaging Period	Ambient Concentration ($\mu\text{g}/\text{m}^3$)	EPA Significance Levels ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)
NO ₂ Annual	32	1	100
CO 1-Hour	98	2000	40,000
8-Hour	69	500	10,000
Particulate Matter 24-Hour	3	5	150
Annual	0.6	1	50

<p align="center">Table 3-17 <i>Ambient Air Quality Impacts—Link Two</i></p>			
Pollutant and Averaging Period	Ambient Concentration (µg/m³)	EPA Significance Levels (µg/m³)	NAAQS (µg/m³)
SO ₂			
3-Hour	23	25	1300
24-Hour	10	5	365
Annual	2	1	80

The results in Table 3-17 show that air quality impacts from operation of the backup generators exceed annual significance levels for NO₂ and 24-hour and annual significance levels for SO₂. However, given that these backup generators only would run one hour per month, impacts on air quality would be minimal. All other pollutants are below the EPA significance levels. All air quality impacts are well below the Federal NAAQS. Also note that the Op Amp facilities are already existing in El Paso and Tucson, and thus, these sites would not impact air quality above existing levels. Maintenance activities of Op Amp facilities would occur on a monthly basis and utilize existing roads. The resulting particulate and gaseous pollutant emissions are not expected to impact air quality in the project area.

Noise

The EPA has established a CNEL of 55 dBA. Noise levels that exceed the CNEL have an adverse impact on sensitive receptors such as schools, hospitals, and parks. Noise levels resulting from construction activities would likely exceed the 55 dBA CNEL. The exceedence of the CNEL would have a negative affect on the human population in the El Paso and Tucson areas, although the effects would be short-term and transient in nature. Elevated noise levels during construction activities may also impact wildlife along the rural areas of the corridor for short periods of time.

The noise impacts from backup generator operation are based on manufacturer data. These data present noise levels from generator operation, but do not include exhaust noise. The manufacturers data indicate that noise levels from backup generator operation would average 91 dBA at 23 feet for a generator operating in an open area. The backup generators located at the Op Amp facilities would be located in protective enclosures or prefabricated buildings, which would reduce ambient noise impacts on surrounding areas. Because the Op Amp facilities are existing in El Paso and Tucson, no additional impact on existing noise levels would occur at these sites.

Maintenance activities may also cause short-term exceedences of the 55 dBA CNEL, but would not have a significant long-term impact on the noise environment in the project area.

3.2.11 Geology and Minerals – Link Two

3.2.11.1 Affected Environment

Geology

The Link Two project area is located in the Basin and Range physiographic province. The Basin and Range province is characterized as a series of small, discontinuous, north-south trending, moderately rugged mountain ranges separated by very broad, flat desert valleys or basins. Typically, the mountains are composed of igneous rocks including intrusive and extrusive, sedimentary rocks, and metamorphic rocks. The basins are composed of uncemented to weakly cemented, poorly sorted erosional deposits of clay, silt, sand, and boulders that were

deposited as a series of alluvial fans. Older alluvial apron fans expressed as terrace deposits are located against the exposed mountain fronts with younger alluvial deposits associated with the flood plains of watercourses.

Large scale faulting was pivotal in creating the Basin and Range province. Generally, a series of normal faults are adjacent to the sides of each mountain range with a basin between each fault. The mountain ranges represent a relative uplifting of massive blocks due to the faulting process, while the basins represent a relative downward movement. The basins were subsequently in-filled with alluvial material from the adjacent mountains. The alluvial materials within the valleys can be many thousands of feet thick. The eastern portion of the project area is within the Rio Grande Rift where a sliver of the earth's crust dropped many thousands of feet between two very deep fault zones (USGS 1995; USGS 1992; Chronic, H. 1983, Chronic, H. 1987).

Even though the Basin and Range province, including the Rio Grande Rift, were formed as a result of extensive faulting, most of the large scale faulting occurred over 15 million years ago. Few active faults exist, and there are no major active faults in the project area (USGS 2000a). The project area is an area of low seismic hazard, with expected peak acceleration on the order of five percent of the acceleration of gravity (USGS 2000b). The rare earthquakes experienced in the area have small magnitudes.

Based on topography, geologic setting, and soils, landslides and other geologic hazards are not expected in the Link Two project area.

Mineral Resources

Mineral resources include locatable minerals, salable minerals, nonmetallic mineral resources, and energy resources such as coal, oil, and gas. The BLM administers the mineral resources of the onshore federal holdings available for development, regardless of management jurisdiction. Some minerals are available for development under the mining laws. Other resources are developed through a leasing system. The statutory authorities for disposition of mineral resources are, for the most part, found in the General Mining Law of 1872, the Mineral Leasing Act of 1920, the Mineral Leasing Act for Acquired Lands of 1947, and the Materials Disposal Act of 1947. These laws govern activities such as the location and patenting of mining claims for hard rock minerals, leasing of lands for leasable minerals (oil, gas, coal, potash, geothermal energy, and certain other minerals), and the sale or free disposal of common mineral materials not subject to the mining or leasing laws (Congressional Research Service 1995).

In the project area for Link Two, locatable minerals (silver, copper, zinc, and gold) are mined or have been mined in Grant County north of Lordsburg and in Hidalgo County south of Lordsburg. Gemstones are produced in Luna County. There have been no locatable minerals activities in areas on or adjacent to the project ROW. Salable minerals including clay, sand, gravel, and volcanic cinder are extracted in the project area. There are a few abandoned sand and gravel pits located adjacent to, but not on the project ROW (New Mexico Bureau of Mines and Mineral Resources 1998; Arizona Department of Mines and Mineral Resources 1998). Oil and gas activities in the project area have been limited to a few exploratory wells with virtually no production of oil and gas in the project area (New Mexico Bureau of Mines and Mineral Resources 2000; Nations, J.D., et. al. 1989; Rauzi, S.L. 1999). There are no known economically recoverable coal resources in the project area (USGS 1997).

3.2.11.2 Impacts on Geology and Minerals

Measurable impacts on the geology and associated mineral resources would result if one or more of the following conditions occur:

- If the geologic setting and associated geologic hazards would create a danger to human health and the environment
- If mineral resource extraction activities were permanently decreased as a result of project activities

No impacts are anticipated from or to geological resources. No impacts are anticipated to mineral resources based on the low level of mineral extraction activity in the area. Any new mineral extraction activities would have to avoid the existing project ROW.

3.2.12 Human Health and Safety – Link Two

3.2.12.1 Affected Environment

Materials hazardous to humans, wildlife, and sensitive environment would be present during project construction. These materials include petroleum fuels, human waste, and chemical toilets. Wet spoils and bentonite clay would also be present during project construction. Spoils and bentonite are not hazardous to human health; however, they can adversely affect water quality, vegetation, and wildlife.

3.2.12.2 Impacts on Human Health and Safety

Impacts on human health and safety are not likely to occur.

3.3 LINK THREE – TUCSON, ARIZONA TO BLYTHE, CALIFORNIA

3.3.1 Vegetation – Link Three

3.3.1.1 Affected Environment

A field survey was conducted for 100 percent of the route as it passed through sections of native vegetation. Vegetation along the AT&T ROW is dominated by ruderal species. Two vegetative communities were identified within a 40 foot survey corridor during field surveys of Link Three. These communities are described briefly below. A list of plant species identified along the project route is included in Appendix I-1.

The proposed Link Three ROW is located within a transitional area between two vegetative subdivisions of the Sonoran Desert: the Lower Colorado River Valley and the Arizona Upland. The two subdivisions interchange for some distance depending on specific local precipitation, elevation, and temperature. The Arizona Upland Subdivision was identified throughout the proposed route and the Lower Colorado River Valley Subdivision was identified primarily west of Eloy, Arizona. Undisturbed areas located along and outside of the ROW generally exhibited characteristics of these two subdivisions. The remaining agricultural, recreational, and urban areas are largely disturbed with little to no native vegetation. Table 3-18 provides a list of general habitat types crossed by the proposed ROW and associated distances.

Table 3-18 <i>General Vegetative Communities Crossed by the Proposed Project—Link Three</i>		
Habitat Type	Length in feet	Length in miles
Agricultural Lands	272,976	51.7
Disturbed – Agricultural	16,896	3.2
Arizona Uplands	274,032	51.9
Lower Colorado River Valley	399,168	75.6
Disturbed ROW	292,512	55.4
Disturbed Urban	425,040	80.5
Riparian	8,448	1.6
Disturbed Riparian	3,168	0.6
Disturbed Urban/Ag Lands	25,872	4.9
Lower Colorado River	3,168	0.6
Total	1,721,280	326.0

Wetland/Riparian Areas

Riparian areas occur along the project ROW in or adjacent to drainageways and/or their floodplains. In addition to a number of minor riparian areas, during the wetland/stream field surveys, eight distinct riparian areas were identified along the proposed route. Riparian areas and drainage crossings are summarized in Appendix I-2. Out of the eight riparian areas identified, two were associated with critical habitat for the Cactus ferruginous pygmy-owl (see Section 3.3.2). One riparian area is previously disturbed (Queen Creek), one crosses the Colorado River, another the Hassayampa River. The other riparian areas are associated with ephemeral drainages.

Species of Concern

Appendix I-3 provides a list of the plants species identified by the natural resource agencies (USFWS, Arizona Game and Fish Department [AGFD]) and their respective status, habitat, and likelihood of occurrence along the proposed ROW for Link Three.

3.3.1.2 Impacts on Vegetation

Direct impacts would include disturbance of common vegetation (20 feet wide) during ROW preparation and construction. Because the proposed ROW has previously been disturbed, it is unlikely that any protected species would be encountered along the proposed route. Field review did not reveal any protected species along the proposed centerline. Additionally, all construction activities would comply with the Arizona Native Plant Law. Riparian areas along Link Three would be avoided or directionally bored resulting in no impacts. There would be no indirect impacts on vegetation anticipated.

3.3.2 Wildlife – Link Three

3.3.2.1 Affected Environment

Common Wildlife

A list of wildlife species identified along Link Three during field assessments performed in March and April 2000 is included in Appendix I-1.

Species of Concern

Wildlife species of concern along Link Three were identified by federal and state resource agencies. In all, 68 potential species of concern are known to exist in counties crossed by Link Three. A table profiling all 68 potential wildlife species is included in Appendix I-4.

A field habitat assessment was conducted over the entire length of Link Three between March and April 2000 (Harris 2000) and is on file at the BLM Phoenix Field Office. Based upon the results of the field habitat assessment, 62 of the 68 potential wildlife species of concern were eliminated from further review due to a lack of potential habitat along the proposed project line or the ability of particular species to avoid construction activities. The six species of wildlife that have been retained for further review and consideration have been retained for one or more of the following reasons:

- Potential habitat for a species was observed in the project area.
- Historical records indicate that a species may be present in the project area.
- A host plant for a species was identified in the project area.

The six species of concern that may inhabit lands crossed by the project are listed below.

Cactus ferruginous pygmy-owl (Glaucidium brasilianum cactorum)

The cactus ferruginous pygmy owl was listed as endangered in Arizona on March 10, 1997 by the USFWS. The proposed ROW traverses two areas of designated critical habitat (approximately two miles total) and seven areas of potential pygmy-owl habitat (Harris 2000). These habitats are marginal areas of Sonoran desertscrub, which are typically composed of saguaro cactus stands associated with short trees such as paloverde, mesquite, and ironwood, and an open understory of triangle-leaf bursage, creosote bush, and other various cacti and shrubs. The Sonoran Desertscrub habitats are typically located along washes. The pygmy-owl utilizes these areas for nesting, foraging, and predator avoidance. Species-specific surveys were performed in each of these areas to determine the presence or potential presence of the pygmy owl. The new 2000 USFWS approved

pygmy-owl survey protocol was followed using the broadcast call methodology. USFWS protocol surveys have produced no evidence to date of the presence of pygmy-owls.

The proposed ROW, within designated critical habitat and other potential habitat areas, is located primarily within previously disturbed areas unlikely to be inhabited by the pygmy-owl.

Yuma Clapper Rail (Rallus longirostris yumanensis)

Yuma clapper rail habitat is generally characterized by freshwater marshes with dense to moderately dense cattails and bulrushes. Potential habitat was identified in the general vicinity of the crossing of the Lower Colorado River. The species is known to occur within marshes in the general vicinity of the proposed route, though not specifically at the location where the proposed route would cross the river near the I-10 bridge (USFWS 2000).

Southwestern willow flycatcher (Empidonax traillii extimus)

The southwestern willow flycatcher is listed as endangered by USFWS and as a WSC by the AGFD. Field investigations identified potential habitat along the Colorado River at the I-10 crossing. Potential breeding habitat for the flycatcher is characterized by a dense riparian habitat along the rivers, streams, and wetlands. Based on the vegetation present along the Colorado River, field investigations determined this area to be potential habitat. This area had dense, but narrow and fragmented, riparian habitat. Southwestern willow flycatchers have not been found nesting in narrow, linear riparian habitats that are less than 30 feet wide, although they will use such linear habitats during migration for foraging and cover. There are known Southwestern willow flycatcher locations south of the proposed river crossing, but based on consultation with the USFWS, none are known directly at the bridge. Therefore, the proposed route is deemed to have marginal breeding and migratory habitat.

Lesser long-nosed bat (Leptonycteris curasoae yerbabuenae)

The lesser long-nosed bat is listed as endangered by the USFWS and as a WSC by AGFD. The bat is typically associated with its primary food source: flower nectar and fruit of columnar cacti, and flower nectar of certain agave species. Because the bat is driven by a seasonal food source, they must migrate to follow the flowering and fruiting of these plants. In addition to food availability, there must be suitable roosting within commuting distance of the food source. There are two main seasons that the Lesser long-nosed bat are found in Arizona: the maternity season that runs from late April to early May to later in the summer and the fall agave flowering season. Based on the current understanding of the habit of the bat, it is unlikely that this species utilizes the ROW between Tucson, Arizona and Blythe, California for either roosting or foraging. Suitable habitat is not present within the existing ROW because of previous construction activities.

Mojave Desert tortoise (Gopherus agassizii)

The Mohave Desert tortoise is listed as threatened by the USFWS in areas generally west of the Colorado River. Potential habitat that may have existed along the proposed ROW, west of the Colorado River, has been disturbed in the recent past and is not within the Desert Wildlife Management Area.

Sonoran Desert Tortoise (Gopherus agassizii)

The Sonoran Desert tortoise population was not granted protection under the Endangered Species Act by the USFWS, but is considered a WSC by the AGFD. The Sonoran population is generally located east of the Colorado River. No tortoises or recent signs of tortoise activity were identified during the field surveys of potential habitat zones; however, the route crosses potential habitat and BLM-categorized desert tortoise habitat Categories I, II, and III at the Little Harquahala Mountains (Category II), the Granite Wash Mountains (Categories I and III).

Other Wildlife of Special Concern in Arizona

Additional species of concern were listed on correspondence from the USFWS and AGFD. Appendix I-4 provides a list of each species, their protected status, habitat requirements, and likelihood of occurrence along the proposed ROW.

3.3.2.2 Impacts on Wildlife

Construction of the proposed project would have minor, short-term impacts on common wildlife habitat, resulting in localized minimal impacts on wildlife populations. Impacts would typically occur when species come in contact with equipment and crews, and when noise disturbs wildlife activities. Construction of the proposed project could result in limited removal or disturbance of riparian species at crossings of streams/washes crossed by the proposed project because riparian areas would be bored and vegetation and habitat would remain in place. Indirect impacts would be low.

For species of concern along Link Three, anticipated impacts include:

Cactus ferruginous pygmy owl or critical habitat

Because the conduits would be installed within an existing disturbed corridor and biological monitors would be employed as required by USFWS and BLM, suitable habitat or individual species would not be impacted by the construction activities. Construction in the areas where critical habitat is designated will be restricted from February 1 to July 15. Mitigation will include on-site vegetation improvements as directed by the USFWS.

Yuma Clapper Rail and the Southwestern Willow Flycatcher, and Lesser long-nosed bat

Impacts on potential habitat or the species are not anticipated for the following reasons: (1) the conduits would be installed in a previously disturbed corridor, (2) construction would disturb small to no amounts of habitat, (3) the small amount of potential habitat that may be disturbed is not high quality, (4) resource protective measures described in Section Two would be followed.

Mohave Desert Tortoise and Sonoran Desert Tortoise

Species-specific mitigation would be employed to avoid the "taking" or "harassment" of desert tortoises. Impacts on either desert tortoise population or their habitat are not anticipated since the proposed ROW is within an existing corridor and biological monitors would be employed as required by USFWS or BLM.

3.3.3 Soils – Link Three

3.3.3.1 Affected Environment

Throughout Link Three, the terrain varies from steep hills and rocky terrain to flat valleys. Parent materials consist of primarily alluvial sediments deposited from runoff from surrounding mountain ranges located along the proposed route. Soils along the ROW are generally recent-to-old alluvial soils that are located on relatively gentle slopes with limited potential for erosion. Although the potential for erosion exists for many soils along the route, soils located in higher elevations and on steeper slopes have the highest potential for impacts from erosive forces.

3.3.3.2 Impacts on Soils

Direct impacts on soils would be low with the implementation of the construction methods and resource protection measures stated in Section Two and the BLM Reclamation Plan Guidelines included in Appendix D. Indirect impacts would be low.

3.3.4 Cultural Resources – Link Three

3.3.4.1 *Affected Environment*

Cultural Setting

The cultural history of the Link Three study area generally parallels developments throughout the American Southwest. It is typically divided into the Paleoindian, Archaic, Formative, Protohistoric, and Historic periods.

By ca. 11,500 B.P., Paleoindian hunter-gatherers were present in the study area. These early populations hunted mammoths and later, bison, but also relied on a wide variety of smaller game and floral resources. Diagnostic projectile points and retouched flake tools are often found in association with extinct fauna at Paleoindian sites (Haury et al. 1953; Haury et al 1959). The Paleoindian occupation of the more arid portions of southwestern Arizona may be reflected by a different archaeological expression with an emphasis on core tools and a scarcity of projectile points (Hayden 1976; Rogers 1958, 1966).

Between ca. 8000 and 3000 B.P. archaeological complexes indicative of the Archaic period occupied the study area. These mobile hunting-gathering groups typically employed a mixed economy targeting a variety of game animals and wild plant resources. This period is equated with the Cochise culture in southeastern Arizona (Sayles and Antevs 1941; Sayles 1983) and with the Lower Colorado River preceramic sequence in southwestern Arizona (Rogers 1939). By the end of this interval, agriculturally-oriented, aceramic villages were emerging in the Tucson Basin (e.g., Ciolek-Torrello 1998; Gregory 1999; Mabry et al. 1997).

The Formative period is typified by the Hohokam, farmers who occupied much of the study area from as early as A.D. 1 until the mid A.D. 1400s. The Hohokam are represented by farming villages with shallow pithouses, plazas, trash mounds, cremations, and extramural work areas (Gumerman 1991; Haury 1976). Canal irrigation, shell jewelry, red-on-buff and red-on-brown ceramics, and ball courts characterize most of the Hohokam sequence. Late in the sequence, platform mounds, adobe residential compounds, inhumations, and polychrome ceramics co-exist with earlier Hohokam traits.

The Formative period in the western deserts and along the Colorado River is poorly documented and is generally equated with the Patayan culture (McGuire and Schiffer 1982). The Patayan cultural expression is distinguished by riverine-oriented agricultural villages and seasonal camps away from the river.

The Protohistoric period (ca. A.D. 1450-1700) represents the interval following the Hohokam occupation and prior to the beginning of the Spanish mission system. During this time, Piman-speaking peoples (Pima, Tohono O'odham, and Sobaipuri) occupied south-central and southeastern Arizona and Hokan/Shoshone-speaking groups (Quechan [Yuman], Mojave, Cocopah, Maricopa, and Chemehuevi) were living along the lower Colorado and Gila rivers. These protohistoric groups practiced agriculture and exploited a wide range of faunal and wild floral resources. During this interval, southern Arizona was also occupied by Yavapai and Apache hunter-gatherers who were located primarily in the upland terrain, but roamed throughout the region.

The historic period is represented by three major intervals of nonaboriginal occupation: Spanish Colonial (1687-1821), Mexican (1821-1853), and American (1853-present). The Spanish Colonial period began with the early exploration and establishment of the Spanish missions in the 17th century. In 1821, Mexico gained independence from Spain. Mexico's control of southern Arizona was fleeting and in 1848 the United States of America took control of southern Arizona. Arizona became an U.S. territory in 1853 and was admitted to the Union in 1912.

Cultural Resources Identified in Link Three

File searches were conducted at the Arizona State Museum, Pueblo Grande Museum, ADOT, and at BLM offices in Phoenix, Yuma, and Lake Havasu City. These searches resulted in the identification of 223 cultural resource projects within the ROW and 351 sites within one mile of either side of the ROW. An intensive inventory was conducted for the entire project ROW. The existing ROW varied in width from 16.5 feet on private land to 40 feet on public land. A total of eight unrecorded sites were identified and documented during

the survey. Twenty-three previously recorded sites within the ROW were relocated and evaluated. The 31 sites include historic sites (15), prehistoric sites (13), and multicomponent sites (3). Prehistoric sites include village sites, ceramic sherd and/or lithic scatters, quarry sites, a stone circle, prehistoric canals, and campsites. Historic site types include railroad stations, railroad siding, canals, roads, artifact scatters, and a structure.

In addition to the newly recorded and reevaluated previously recorded sites, 13 sites and as many as 72 prehistoric canal segments are present within the ROW in the Phoenix Basin. None of the sites were detected during survey, but all are potentially eligible.

Of the 31 sites, 25 sites are recommended as eligible or potentially eligible to the NRHP. This includes ten historic sites, 12 prehistoric sites, and three multicomponent sites. Six sites are recommended as not eligible to the National Register.

3.3.4.2 Impacts on Cultural Resources

Cultural resources are non-renewable and easily damaged. Damage can occur through ground disturbance, casual site visitation, and/or theft and vandalism. The potential for unauthorized collection of artifacts, minor displacement of artifacts by vehicles, and other adverse effects to cultural resources increases with additional work within the ROW. Direct impacts to cultural resources can occur as a result of development activity including construction and maintenance. An undertaking is regarded as having an effect on a cultural property if it alters any of the characteristics that qualify it for inclusion in the NRHP.

The ROW has been in existence since 1948 with two cable lines already in place, one placed in 1948 and the other in 1987. Cultural resource studies were not conducted for the earlier cable placements. The sites identified during this study have been previously subject to construction and maintenance activities and have received some level of impact. Direct physical impacts on culturally significant and potentially significant sites would occur during ground disturbance activities related to this project. Impacts would be reduced to less than significant levels through implementation of measures described in the project description of this EA and a treatment plan developed in cooperation with BLM archaeologists, SHPOs, and interested tribes.

Table 3-19 contains a summary of the cultural resources identified within the APE.

<p align="center">Table 3-19 <i>Cultural Resources Documented – Link Three</i></p>						
Agency No. (-[ASM])	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted^c
AZ AA:12:859 ^a	Hohokam sherd and lithic scatter	ADOT, Private	Potentially eligible: d	ROW cuts across edge of site along paved road; presence and extent of subsurface deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ EE:3:53 ^a	Southern Pacific Railroad Mainline	ADOT, UPRR	Potentially eligible: a	ROW crosses site; the cable conduit will be installed via a bore under the site	No adverse effect	No further work
AZ AA:12:858 ^a	Multicomponent historic shrine and Hohokam sherd and lithic scatter	ADOT, UPRR	Potentially eligible: d	ROW cuts through the site; presence and extent of subsurface deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ AA:12:736 ^a	Hohokam sherd and lithic scatter	ADOT, Private	Potentially eligible: d	ROW cuts through the site; presence and extent of subsurface deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ AA:12:51 ^a	Hohokam sherd and lithic scatter	COE, ADOT, ADNRR, Pima County	Eligible: d	ROW cuts through the site; presence and extent of subsurface deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ AA:12:370 ^a	Hohokam sherd and lithic scatter and historic homestead	ADOT, Private	Potentially eligible: d	ROW cuts through the site; presence and extent of subsurface deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ AA:12:252 ^a	Hohokam sherd and lithic scatter	ADOT, Private	Potentially eligible: d	ROW cuts through the site; presence and extent of subsurface deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ AA:12:258 ^a	Rillito Train Station	ADOT, UPRR	Eligible: a, d	ROW cuts across edge of site; no impact	No adverse effect	No further work
AZ AA:12:382 ^a	Adonis site: Hohokam village and sherd scatter	ADOT, Private	Potentially eligible: d	ROW cuts through the site; presence and extent of subsurface deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted

<p>Table 3-19 <i>Cultural Resources Documented – Link Three</i></p>						
Agency No. (-[ASM])	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted^c
AZ AA:12:742 ^a	Maraña Siding	ADOT, Private	Not eligible: poor integrity	ROW cuts across edge of site; no impact	No adverse effect	No further work
AZ AA:12:741 ^a	Hohokam sherd and lithic scatter	ADOT, UPRR	Potentially eligible: d	ROW cuts through the site; presence and extent of subsurface deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ AA:7:462 ^a	Red Rock Station	Pinal County, UPRR	Not eligible: poor integrity. Previously recommended eligible: d. Area within ROW noncontributing: postdates 1960	ROW cuts across edge of site; no impact	No adverse effect	No further work
AZ AA:7:6 ^a	Hohokam sherd and lithic scatter and historic feature and trash scatter	ASLD, Pinal County, Private	Potentially eligible: d	ROW cuts through the site; presence and extent of subsurface deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ AA:2:133 ^a	Florence-Casa Grande Canal Extension	Private	Potentially eligible: a	ROW crosses site; the cable conduit will be installed via a bore under the site	No adverse effect	No further work
AZ AA:3:209 ^a	Casa Grande Canal	Private	Potentially eligible: a	ROW crosses site; the cable conduit will be installed via a bore under the site	No adverse effect	No further work
AZ T:10:84 ^a	SPRR, Wellton to Eloy Spur	UPRR	Eligible: a	ROW crosses site; the cable conduit will be installed via a bore under the site	No adverse effect	No further work
AZ AA:2:130 ^a	Pima Lateral Canal	Private	Potentially eligible: a	ROW crosses site; the cable conduit will be installed via a bore under the site	No adverse effect	No further work
AZ U:15:148 ^a	Hohokam habitation	Pinal County, Private	Eligible: d	ROW cuts through site; subsurface deposits probable	Potential adverse effect	Excavate ROW

Table 3-19 <i>Cultural Resources Documented – Link Three</i>						
Agency No. (-[ASM])	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted^c
AZ U:15:127 ^a	Hohokam habitation site and canal	Pinal County, Private	Eligible: d	ROW cuts through the site; presence and extent of subsurface deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
AZ U:16:299 ^a	SPRR, Mesa to Winkelman Spur	BOR	Eligible: a	ROW crosses site; the cable conduit will be installed via a bore under the site	No adverse effect	No further work
AZ U:15:388	Magma Arizona Railroad	City, County	Eligible: a	ROW crosses site; the cable conduit will be installed via a bore under the site	No adverse effect	No further work
AZ U:10:2 ^a	Germann site; Hohokam village	Maricopa County, Private	Potentially eligible: d	ROW cuts through the site; presence and extent of subsurface deposits unknown	Potential adverse effect	Trench ROW; investigate cultural deposits as warranted
B ^b	La Casa; Hohokam village	City of Mesa	Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Monitor construction
B ^b	Casa Alma; Hohokam village	City of Mesa	Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Monitor construction
B ^b	La Casita; Hohokam village	City of Mesa	Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Monitor construction
AZ U:9:214 ^b	Las Acequias; Hohokam village	City of Mesa, Private	Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Monitor construction
B ^b	Silo site; Hohokam village	City of Phoenix, Private	Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Monitor construction
B ^b	Pueblo Patricio; Hohokam village	City of Phoenix, Private	Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Monitor construction
B ^b	La Villa Ruin; Hohokam village	City of Phoenix, Private	Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Monitor construction

Table 3-19 <i>Cultural Resources Documented – Link Three</i>						
Agency No. (-[ASM])	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted^c
B ^b	Canal crossings	Cities of Mesa, Phoenix	Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Monitor construction
AZ T:12:116 ^b	Pueblo del Rio; Classic period Hohokam village	Private	Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Trench ROW; investigate cultural deposits as warranted
AZ T:12:52 ^b	Pueblo del Alamo; Classic period Hohokam village	Private	Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Trench ROW; investigate cultural deposits as warranted
AZ T:12:99 ^b	Midvale M-1, Hohokam village	City, County	Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Trench ROW; investigate cultural deposits as warranted
AZ T:12:118 ^b	Fowler Ruin; Hohokam site		Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Trench ROW; investigate cultural deposits as warranted
B ^b	El Termino Pueblo; Hohokam site	Private	Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Trench ROW; investigate cultural deposits as warranted
AZ T:12:3 ^b	Los Aumentos Pueblo; Hohokam site	Private	Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Trench ROW; investigate cultural deposits as warranted
B ^b	Canal crossings	City, County, Private	Potentially eligible: d	Specific site location and condition unknown	Indeterminate effect	Trench ROW; investigate cultural deposits as warranted
AZ S:7:46 ^a	Possibly Patayan sherd and lithic scatter	ASLD	Potentially eligible: d	ROW cuts through the site; presence and extent of subsurface deposits unknown	Potential adverse effect	Test units; trench as warranted
AZ S:7:47 ^a	Historic can scatter	BLM, Private	Not eligible: poor integrity	ROW cuts through site; subsurface deposits unlikely	No adverse effect	No further work
AZ S:6:28 ^a	Historic can scatter	BLM, Private	Not eligible: poor integrity	ROW cuts through site; subsurface deposits unlikely	No adverse effect	No further work
AZ S:5:44 ^a	Historic Highway 60	ADOT, BLM	Not eligible: poor integrity	ROW crosses site; the cable conduit will be installed via a bore under the site	No adverse effect	No further work

<p align="center">Table 3-19 <i>Cultural Resources Documented – Link Three</i></p>						
Agency No. (-[ASM])	Site Type	Land Status	Eligibility: Criterion	Impact of Undertaking	Effects of Undertaking	Recommendations, if Impacted^c
AZ S:5:40 ^a	Prehistoric quarry site and lithic scatter	ADOT, BLM, Private	Previously recommended eligible: d. Area within ROW noncontributing: previously disturbed	ROW cuts across edge of site; no impact	No adverse effect	Fence ROW and monitor construction
AZ R:8:99 ^a	Historic road with associated trash	BLM	Eligible: a, d	ROW cuts through site; subsurface deposits unlikely	Potential adverse effect	Map, photograph, document artifacts, and records search
AZ R:8:100 ^a	Quartzsite Racetrack site	BLM	Eligible: d; AIRFA	ROW cuts through site; subsurface deposits unlikely	Adverse effect	Avoid
AZ R:7:109 ^a	Historic trash dump	BLM	Potentially eligible: a, d	ROW cuts across edge of site, subsurface deposits unlikely within ROW	No adverse effect	Avoid, fence south ROW boundary during construction
AZ R:7:110 ^a	Pot drop	BLM	Not eligible: recording has exhausted information potential	ROW cuts through site; subsurface deposits unlikely	No adverse effect	No further work

^aLocated and documented site.

^bSite not located, but in area of potential discovery.

^cRecommendations are predicated on the assumption that avoidance, the primary recommendation, is not feasible.

ADNR= Arizona Department of Natural Resources

ADOT= Arizona Department of Transportation

ASLD= Arizona State Land Development

BLM= Bureau of Land Management

BOR= Bureau of Reclamation

COE= US Army Corps of Engineers

UPRR= Union Pacific Railroad

3.3.4.3 Native American Consultations

As part of the requirements under NEPA, the National Historic Preservation Act and the American Indian Religious Freedom Act, notification and requests for comment were sent to appropriate Native American Tribes by the BLM. Native American tribes in the vicinity of the project, or those who expressed interest in this type of project, were contacted to explore concerns and identify traditional cultural properties. Tribes were notified during initial stages of the project with continued follow-up. A MOA was also circulated for tribe participation.

No information specific to Native American or traditional use in the project area has been received. A summary of the tribal contacts and consultations is contained in Section 4.

3.3.5 Visual Resources – Link Three

3.3.5.1 Affected Environment

Visual resources are defined as visually sensitive areas where the maintenance of the surrounding visual environment is important to people's enjoyment of using an area, and unique or unusual landscapes having natural scenic value. Visual resources are described using BLM's VRM system. This is a process used to identify and manage scenic values on public land. Landscape classes range from Class I, the most scenic and therefore the most sensitive to development changes, down to Class IV, the least scenic and also least sensitive to development.

No Class I areas exist along Link Three. One Class II area, the Colorado River, is present along the proposed route. The remainder of Link Three is classified as Class III or Class IV.

3.3.5.2 Impacts on Visual Resources

Direct impacts on the visual setting would be minor for the installation of the cable. In addition, Op Amp facilities developed adjacent to existing facilities in urban settings would create minor impacts on the visual environment. Op Amp facilities in the rural setting would be developed in either Class II or Class III areas and contrast levels would be low to moderate. Impacts to the visual setting would be low.

3.3.6 Land Use and Range Resources – Link Three

3.3.6.1 Affected Environment

Land Use

Link Three is entirely within designated utility or highway corridors. Land use along the proposed ROW consists of transportation, agricultural, recreational, urban, and undisturbed lands. The agricultural areas consist of crop farming and include, but are not limited to production of cotton, leaf lettuce, and grains. Urban land use consists of residential and commercial development, and is concentrated within the urbanized areas of Tucson, Mesa, Phoenix, and Quartzite, Arizona, and Blythe, California. Except for Tucson and Phoenix, commercial businesses are concentrated mostly within central business district areas along US highways routed through the towns.

Land Jurisdiction

The Link Three project area is located in portions of Pima, Pinal, Maricopa, and La Paz counties in Arizona and Riverside County in California. Land jurisdiction of the utility corridors includes private land, state land and federal land. Federal land encountered along the proposed route is located west of Phoenix as shown in

Appendix A and summarized in Table 2-1. Approximately 17 percent of the Link Three route is located on federal land.

The project is located within an existing utility corridor on both public and private land.

The project area contains several sections of land managed or under jurisdiction of the State of Arizona. These lands are open rangelands. Private land within the project area is used for a variety of purposes including residential, commercial, industrial, agriculture, and recreational.

Livestock Grazing

BLM administered land can be grazed by livestock. Livestock grazing occurs on BLM administered land through perennial, perennial-ephemeral, and ephemeral allotments. Link Three crosses the following BLM grazing allotments:

- Crowder – Weisser Allotment
- Salome Allotment

3.3.6.2 Impacts on Land Use and Range Resources

The addition of the new line would not change existing land use throughout the corridor. Agriculture, grazing, transportation, and other existing land uses would continue unchanged. Temporary impacts during construction may occur in crop or fence damage, but are not significant. Direct and indirect impacts on land and range resources are expected to be low to none. The proposed route conforms to BLM management direction regarding location and use in existing ROW. Impacts on range and livestock grazing would be minimal. AUMs would not be affected.

Minor cumulative effects would occur to community development and sites. During construction, towns may incur short-term traffic delays or detours where construction activities are present. Short-term construction impacts may result from traffic being detoured around construction zones where the route crosses or parallels roads.

3.3.7 Socioeconomics – Link Three

3.3.7.1 Affected Environment

Appendix I-5 lists pertinent socioeconomic data for each county crossed by the proposed route.

Certain areas along the route are likely to be used as “deployment areas” (areas of temporary residence for construction workers during the project). At this time, it is not known which deployment area(s) would be used during construction on public land.

3.3.7.2 Socioeconomic Impacts – Link Three

Minor direct or indirect socioeconomic impacts are expected from construction or maintenance of this project. Communities crossed appear to have capacity to accommodate temporary construction crews.

The economics of the project deployment areas would likely be strengthened, both directly and indirectly, by the influx of workers. Workers likely would stay at local hotels and eat at local restaurants. It is assumed that with these expenses and other miscellaneous costs they would spend approximately \$100 per day on local services and products. Assuming 40 workers per area and a \$100/day expenditure per worker, each area would realize an additional \$4,000 per day in revenue. Most of the work force would be imported. The economic boost would increase the tax revenues, thus indirectly benefiting local and state governments to a small degree.

3.3.8 Water Resources – Link Three

3.3.8.1 Affected Environment

Link Three crosses two perennial streams/rivers from Tucson, Arizona to Blythe, California: the Gila River and the Colorado River. Two major washes are also crossed by the proposed alignment: Hassayampa Wash and Centennial Wash, both in Arizona. Other resources crossed include numerous dry washes and intermittent streams along the proposed route. Appendix I-2 lists all water resources (rivers/streams/washes) crossed by the proposed route. Average annual precipitation ranges from about 3 to 15 inches depending on elevation and localized storm events.

3.3.8.2 Impacts on Water Resources

The proposed conduit installation includes measures to reduce the potential for petroleum spills; therefore, no spill impacts on water quality are expected. The measures to reduce disturbance of wash sediments, banks, and vegetation would limit erosion and sedimentation potential.

3.3.9 Air Quality and Noise – Link Three

3.3.9.1 Affected Environment

Air Quality

The proposed route crosses five counties, each of which have different jurisdictional guidelines regarding air quality. The air quality affected environment is subdivided below by each county with the pollutant status of each.

Pima County

Site-specific non-attainment areas are recorded for PM-10. These site-specific areas include the Rillito PM-10 Nonattainment area and the Ajo PM-10 Nonattainment area. The Rillito area has one stationary source listed as the Arizona Portland Cement Company with contributing sources including residential development, unstabilized river banks, agriculture, unpaved local roads and unstabilized road shoulders. The Ajo area major emission source has been the Phelps Dodge Corporation. The Pima County Department of Environmental Quality requires construction projects to obtain an air quality permit for activities that emit fugitive dust and require the implementation of reasonably available control measures (RACMs) to control such emissions. A permit would be acquired prior to construction.

Pinal County

Pinal County is listed as meeting state and federal air quality standards within the project region. The Pinal County Air Quality Department (PCAQD) is responsible for air quality issues within the county. The PCAQD does not require an air quality permit for construction activities or the development of a dust control plan.

Maricopa County

Maricopa County, which encompasses Phoenix, Arizona and the surrounding areas, has been classified as a serious non-attainment area for CO, ozone, and PM-10. Emission sources for CO and Ozone include non-road and on-road mobile sources, point sources, and area sources.

Emission sources within the Maricopa County PM-10 Nonattainment area include earthmoving and windblown emissions from unpaved parking lots, agricultural areas, construction sites, disturbed open areas, and industrial sites. The Maricopa County Department of Environmental Services – Air Quality Division requires the

submittal of an application for earth moving permit, demolition, and dust control plan. As part of the application, the project proponent is required to either develop a project specific Dust Control Plan or choose primary RACMs for each category listed in the permit application. The construction team would determine the appropriate choice in cooperation with the Maricopa County Department of Environmental Services. A permit would be acquired prior to construction.

La Paz County

La Paz County is listed as in attainment for state and federal air quality standards. The Arizona Department of Environmental Quality regulates La Paz County at the state level. ADEQ does not require an air quality permit for PM-10 or the development of a dust control plan.

Riverside County

The proposed route terminates seven miles into Riverside County at Blythe, California. The area crossed by Link Three is in attainment for state and federal air quality standards.

Noise

The project area generally extends through largely undeveloped areas that are relatively quiet with the exception of the Phoenix and Tucson metropolitan areas. Existing noise sources along the project area include surface roadways, which support traffic from recreational users and off-road vehicles.

Noise-sensitive areas along the ROW would experience increased noise levels during the installation of both the conduit and associated components. Residences within an estimated 150 feet and outdoor users within 50 feet of the proposed alignment would experience the highest levels of noise, which may exceed noise standards if all equipment operates at the same time.

3.3.9.2 Impacts on Air Quality and Noise

All Op Amp facilities meet local permitting requirements for Air Quality and Noise Emissions.

Air Quality

Construction equipment used in the proposed project would create air emissions through the combustion of hydrocarbon fuels in routine construction activity. The construction-related impacts of this project would be temporary, lasting approximately eight months, and would have no long-term impact on air quality. In addition, the construction-related emissions would be distributed over a large geographic area, minimizing localized impacts. The construction of the proposed project would create fugitive dust by disturbing soil and roadbeds; however, resource protection measures described as part of the proposed project description would reduce impacts on air quality and impacts would be low.

Noise

Noise impacts would be temporary; the duration of the noise impacts depends on the length of time that installation activities occur near any noise-sensitive area or receptor. Project construction would occur only during daylight hours when noise sensitivities for residences are at their lowest.

3.3.10 Geology and Minerals – Link Three

3.3.10.1 Affected Environment

The project area lies within the Basin and Range Province of southern and western Arizona, which extends into the Blythe, California region. This province is characterized by alternating mountain ranges and broad valleys, most of which were formed by block faulting during the last part of the Cenozoic Era (15 to 5 m.y.

ago). The mountain ranges contain rocks of various types and ages that have been extensively folded and faulted during the Mesozoic and Cenozoic Eras (100 to 15 m.y.ago). The intervening valleys are underlain by thick sequences of consolidated sediments (mostly gravel, sand, and silt) that are the main aquifers in the region.

A wide range of minerals is known to occur in the Link Three project area and includes precious metals, nearly all minerals on the strategic metals list, and most minerals used domestically. Trace elements have also been located in the project area.

3.3.10.2 Impacts on Geology and Minerals

No impacts on geologic or mineral resources are anticipated.

3.3.11 Human Health and Safety – Link Three

3.3.11.1 Affected Environment

The proposed conduit would be installed within an existing AT&T ROW that travels through urban, residential, and unimproved areas.

3.3.11.2 Impacts on Human Health and Safety

Impacts on traffic patterns would occur, and implementation of traffic control procedures in cooperation with local officials would be reduced to minor and temporary impacts

Use of construction equipment and vehicles can involve direct health and safety risks to equipment operators and other construction personnel. Construction traffic impacts could affect the safety of passing motorists. With the implementation of the resource protection measures incorporated into the proposed project description, worker/public exposure and health and safety are not expected to be affected significantly by construction activities.

3.3.12 Environmental Justice – Link Three

Disproportionate impacts on minorities and low-income populations are not expected along Link Three as a result of the proposed project. For Link Three minorities appear to make up a small proportion of the total population in the study area. In populated areas the route typically passes through various urban streets and central business districts. Most of the route follows the existing AT&T corridor, which was identified as an alternative. Mixed income communities have developed around the route throughout the years. Disproportionate cumulative impacts on these groups from the Proposed Action or other proposed/planned projects are unlikely. Low-income populations are scattered in the study area.

3.4 LINK FOUR – BLYTHE, CALIFORNIA TO SAN DIEGO, CALIFORNIA

3.4.1 Vegetation – Link Four

3.4.1.1 Affected Environment

Vegetation community types include weedy disturbed, irrigated agricultural crops, desert dunes, coastal sage scrub, creosote bush scrub, wash scrub, wetland and riparian, desert succulent scrub, juniper/oak woodland, chemise chaparral, and tamarisk scrub. The predominant vegetation type within the proposed construction area is weedy disturbed.

Special-Status Plant Species

Information on occurrences of state and federally protected plants in the project study area was obtained initially from the California Natural Diversity Database (CNDDDB) (CDFG 1999) and through reconnaissance-level surveys of the project route. Additional information on species' habitat requirements, blooming periods, and field identifying characteristics was obtained from state flora guides (Munz and Keck 1973; Hickman 1996) and from the CNPS's Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994). In San Diego County, qualified botanists drove the route and surveyed on foot those areas that could provide habitat for San Diego Thorn-mint (*Acanthomintha ilicifolia*). No suitable habitat or individuals were found.

The field surveys for threatened, endangered, and special status plants were conducted between March and July 2000. Qualified botanists conducted a 100 percent coverage survey of the entire road ROW using 30 foot transect spacing on both sides of the road for all of Riverside and Imperial counties. In San Diego County, qualified botanists drove the route and surveyed on foot those areas that could provide habitat for special-status plants with the potential to occur in the construction corridor. Plants were subsequently photographed (when possible), flagged for geographic positioning system (GPS) data capture (electronically surveyed and mapped with GPS receivers to achieve location accuracy of one-meter diameter or less), and mapped on USGS 7.5-minute quad maps. Table 3-20 shows the species found within the construction corridor and their status. Details of the field surveys and results may be found in the Biological Evaluation.

Table 3-20 <i>Special Status Plant Species Found Along the Route—Link Four</i>					
Scientific Name	Common Name	Habitat	Federal	State	CNPS
<i>Astragalus magdalenae</i> <i>var. peirsonii</i>	Peirson's milk-vetch	Desert dunes	FT	CE	1B
<i>Croton wigginsii</i>	Wiggins's croton	Desert dunes		CR	2
<i>Pholisma sonora</i>	Sand food	Desert dunes	FSC		1B
<i>Helianthus niveus</i> <i>ssp tephrodes</i>	Algodones Dune Sunflower	Desert dunes	FSC	CE	1B
<i>Palafoxia arida</i> <i>var. gigantea</i>	Giant Spanish Needle	Desert dunes	FSC		1B
<i>Calliandra eriophylla</i>	Fairyduster	Cresosote bush scrub and desert dry wash woodland, along desert washes			2
Status					
FT Listed as Threatened under the Federal Endangered Species Act; likely to become an endangered species within the foreseeable future.					
CE Listed as Endangered under the California Endangered Species Act; prospects of survival and reproduction are in immediate jeopardy from one or more causes.					

Table 3-20
Special Status Plant Species Found Along the Route—Link Four

CR	California state listed as rare.
FSC	Federal Species of Concern; (formerly Federal Candidate Category 2 species) the threat and/or distribution data is insufficient to support listing at this time.
1B	California Native Plant Society List 1B; plants rare, threatened, or endangered in California and elsewhere.
2	Plants rare, threatened, or endangered in California, but more common elsewhere.
Source: CDFG 1999; Skinner and Pavlik 1994.	

3.4.1.2 Impacts on Vegetation

Loss of individuals, populations, and communities of plants would be short term. In the project area, native plant establishment and growth is slow due to the lack of moisture. With average rainfall, the construction corridor may revegetate within 5 to 10 years. Drier conditions may lengthen the time period of native plant re-establishment within the construction corridor. Other long-term effects include the change in vegetation community or in listed plant population distribution due to displacement by invasive plants or difficulty in re-establishment.

There would be no impacts on special-status species. The project is linear, narrow, and mostly located in sparsely vegetated road shoulders immediately adjacent to pavement or in the pavement itself. Where construction would occur away from the pavement edge within the road ROW, resource protection measures as specified in 2.6.1 would be implemented to avoid special-status species.

3.4.2 Wildlife – Link Four

3.4.2.1 Affected Environment

The immediately impacted environment for the project route is generally road shoulder where there is limited vegetation and wildlife habitat. However, there is suitable habitat for a variety of species adjacent to the road shoulder and the project could have an indirect effect on such habitat.

General Wildlife Habitat

The proposed fiber optic cable alignment between Blythe and San Diego crosses several general wildlife habitat types that are influenced by elevation gradients, climate, and human-induced activities. These types include agricultural areas, dune desert, desert shrub/scrub, juniper and oak woodland, rock outcrop, riparian, and chaparral/coastal sage scrub mix. Specific habitat requirements for special-status species of concern are discussed below.

Special-Status Wildlife Species

To determine presence of potential habitat for special-status wildlife species, existing and available information, including RMPs and other environmental documents prepared for similar proposed actions in the project study area were reviewed to determine the locations and types of wildlife resources that could exist in the project study area (See Appendix J-1). Information on species occurrence also was gathered from statewide databases through contacts with the CNDDB (CDFG 1999). Contacts were made with species experts and resource specialists from BLM, CDFG, USFS, and USFWS to gather file information on wildlife resources in the project study area, including mapped and database information.

Field surveys were then conducted that covered the entire road ROW, an approximate 100 foot wide corridor on both sides of the alignment. Qualified wildlife biologists conducted protocol and habitat based field surveys in the project study area from March through July 2000 for certain state and federally protected species listed below. Detailed results of the surveys are found in the Biological Evaluation in the project records on file in the BLM field office in El Centro. General results are presented here. Details of habitat and species found may be found in the Biological Evaluation.

Species of Concern

Birds

Suitable habitat occurs along or adjacent to the route for three bird species of special concern in California: Burrowing owl (*Athene cunicularia*), LeConte's thrasher (*Toxostoma lecontei*), and Crissal thrasher (*Toxostoma crissale*). (See Biological Evaluation for more detail.)

Burrowing Owl. Burrowing owls are found in open dry grasslands, deserts and scrublands characterized by low growing vegetation (CDFG 1999), and throughout the Imperial Valley in irrigated agricultural lands. Suitable habitat exists for burrowing owls from Seeley to Brunt's Corner in Imperial County, and from Palo Verde to Blythe in Riverside County. No burrowing owls were observed outside of irrigated agricultural lands.

Le Conte's Thrasher. Le Conte's thrasher commonly nests in dense spiny shrubs or branched cactus in desert wash habitat (CDFG 1999). Suitable habitat occurs from Plaster City southeast to Coyote Wells in Imperial County, from Milpitas Wash in Imperial County along the Palo Verde Lagoon, and south of Ripley in Riverside County.

Crissal Thrasher. The Crissal thrasher nests in dense vegetation along streams, washes, and in mesquite (CDFG 1999). Suitable Crissal thrasher habitat occurs from Milpitas Wash in Imperial County, along the Palo Verde Lagoon, and south of Ripley in Riverside County.

Surveys for both species of thrasher were limited to habitat surveys for microphyll woodland habitat. Maps identifying areas of suitable habitat are included in the biological evaluation.

Reptiles and Amphibians

Suitable habitat occurs along or adjacent to the route for two species of special concern in California: the Flat-tail horned lizard (*Phrynosoma mcallii*) and Couch's spadefoot toad (*Scaphiopus couchi*). (See Biological Evaluation for more detail.)

Flat-tailed horned lizard. The flat-tailed horned lizard is restricted to desert washes and desert flats in Imperial County (CDFG 1999). Suitable habitat for the flat tailed horned lizard occurs in Imperial County from Coyotes Wells extending to the Southwest side of Brawley, and from the east side of the Highline Canal to Glamis. The project route is north of the East Mesa Flat-Tailed Horned Lizard Management Area (Foreman 2000). A survey for species presence was conducted between Ocotillo and Plaster City (approximately 4.5 acres) along Highway 80, as specified by the BLM project biologist (Nikolai 2000). No individuals were found. After all on-site mitigation measures have been implemented, the project would have no net adverse impact on flat-tailed horned lizards, and hence no compensation calculation is necessary.

Couch's Spadefoot Toad. During short periods following warm summer rains that temporarily produce rain pools in which to breed, Couch's Spadefoot Toad may appear in large numbers. Suitable habitat occurs in depressions along the north side of Highway 78 in eastern Imperial County (Dimmitt 1977). No surveys were conducted for this species due to lack of suitable weather conditions. Occupancy of the pool habitat north of Highway 78 is assumed for the purposes of this project.

State and Federally Protected Wildlife Species

Table 3-21 presents summary information regarding state and federal protected wildlife surveyed for Link Four.

Birds

Two species of birds are listed as Federally Endangered: least Bell's vireo (*Vireo bellii pusillus*), which is also a California Endangered species, and southwestern willow flycatcher (*Empidonax traillii extimus*). The California gnatcatcher (*Poliopitila californica*) is listed as Federally Threatened and is a species of special concern in California, and Cliff swallows (*Hirundo pyrrhonota*) are protected under the Migratory Bird Treaty Act. (See Biological Evaluation for more detail.)

Least Bell's Vireo. The least Bell's vireo is a summer resident of southern California below 2,000 feet. It inhabits low riparian areas in the vicinity of water, or in dry riverbeds (CDFG 1999). Suitable habitat extends from Los Coches Creek east to Boundary Creek in San Diego County. Survey results demonstrated the presence of several individuals. Details of habitat and location can be found in the Biological Evaluation.

Southwestern Willow Flycatcher. The southwestern willow flycatcher utilizes densely vegetated riparian habitat with streamside cottonwoods and willows found in the project area during the breeding season and during migration. No individuals were found in any of the surveys. Details of habitat surveyed can be found in the Biological Evaluation.

Coastal California Gnatcatcher. The coastal California gnatcatcher utilizes low coastal sage scrub in arid washes, on mesas and slopes as a permanent resident of the coastal sage scrub communities below 2,500 feet elevation (CDFG 1999). Suitable habitat occurs throughout La Mesa, El Cajon, Flinn Springs, and the Peninsular Range in San Diego County. Two surveys of a three-survey protocol were conducted prior to deciding to assume occupancy for purposes of mitigation (Ostheimer 2000). Survey results demonstrated the presence of several individuals. Details of habitat and location can be found in the Biological Evaluation.

Cliff Swallow. Cliff swallows build mud nests and breed from March through August, sometimes in enormous colonies under bridges, in culverts, and on buildings. Active colonies are located underneath bridge structures where the fiber optic cable would be attached or directional bored in Riverside, Imperial, and San Diego counties. Surveys for swallows and remnants of swallows nests were conducted by biologists in March, April, and May 2000 within the historic range of the species in the project corridor. The surveys were conducted along the project corridor where suitable habitat exists underneath bridge structures, open lowland terrain, farmlands, meadows, culverts, road cuts, etc. (Small 1994). Cliff swallows were observed under several structures on Link 4. Details of location can be found in the Biological Evaluation.

Mammals

Peninsular bighorn sheep (*Ovis canadensis cremnobates*) is listed as Federally Endangered and California Threatened. Suitable habitat for the Peninsular bighorn sheep occurs from the In-Ko-Pah Mountains in San Diego County west of El Centro in Imperial County. During habitat surveys in the area where the project route crosses migrational routes, no animals or sign were observed. The route itself and the adjacent roads are not near historic water sources or lambing areas. The construction process is very localized, present only for a day in each area, and would not block sheep movement.

Table 3-21
State and Federal Protected Wildlife Surveyed—Link Four

Scientific Name	Common Name	Habitat	Federal	State	Survey Level
Mammals					
<i>Ovis canadensis cremnobates</i>	Peninsular bighorn sheep	Cibola NWR and the Chocolate Mountains of Imperial County. Sheep tend to concentrate in open, rocky steep areas with available water and herbaceous forage.	FE	CT	H
Birds					
<i>Polioptila californica californica</i>	Coastal California gnatcatcher	Permanent resident in coastal sage scrub, where it prefers relatively dense stands dominated by California sage.	FT	CSC	I
<i>Empidonax traillii extimus</i>	Southwest willow flycatcher	Densely vegetated riparian habitat with streamside cottonwoods and willows.	FE	--	I
<i>Toxostoma crissale</i>	Crissal thrasher	Inhabits the dense understory of desert riparian and desert wash habitats.		CSC	H
<i>Toxostoma lecontei</i>	Le conte's thrasher	Occurs in desert scrub habitats, open washes, and in Joshua tree habitat.		CSC	H
<i>Athene cunicularia</i>	Burrowing owl	Burrowing owls are found in open, dry grasslands, deserts, agricultural areas, and scrublands characterized by low growing vegetation. These owls are subterranean nesters. Both natural and artificial burrows provide protection, shelter, and nests for burrowing owls. Burrowing owls typically use burrows made by small mammals such as ground squirrels or badgers, but also may use man-made structures such as cement culverts, cement, asphalt, wood debris piles, or openings beneath cement or asphalt pavement.	--	CSC	H
<i>Vireo bellii pusillus</i>	Least Bell's vireo	Riparian thickets either near water or in dry portions of river bottoms, nests along margins of bushes and forages low to the ground. May also be found using mesquite and arrow weed in desert canyons.	FE	CE	I
<i>Hirundo pyrrhonota</i>	Cliff swallows	Open areas near cliffs, bridges and buildings. Colonial nesters, sometimes in enormous colonies. Nests sometimes built on cliffs, but usually under bridges, in culverts, and on buildings.	MBA	--	I
Reptiles / Amphibians					
<i>Bufo microscaphus californicus</i>	Arroyo southwestern toad	Prefers sandy arroyos and river bottoms with open riparian vegetation in inland valleys and foothills, burrows in upland habitats during the inactive season within 1 km of riparian areas.	FE	CSC	H
<i>Phrynosoma mcalli</i>	Flat-tailed horned lizard	Sandy areas, desert pavement, and locations with soils that are fine, loose, and windblown.		CSC	I
<i>Scaphiopus couchi</i>	Couch's spadefoot toad	Creosote scrub in areas containing temporary pools lasting at least 7 days and substrates loose enough to allow burrowing nearby.		CSC	H
<i>Gopherus agassizii</i>	Desert tortoise	Rocky foothills, lower bajadas, and semidesert grassland.	FT	CT	I

<p style="text-align: center;">Table 3-21 <i>State and Federal Protected Wildlife Surveyed—Link Four</i></p>					
Scientific Name	Common Name	Habitat	Federal	State	Survey Level
Invertebrates					
<i>Euphydryas editha quino</i>	Quino Checkerspot Butterfly	Associated with Plantago erecta of varying densities, sage scrub, and open chaparral. Grasslands, vernal pools, open or sparsely vegetated areas, hilltop ridgelines, rocky outcrops, trails, and dirt roads.	FE	--	I

Notes:

FE – Listed as Endangered under the Federal Endangered Species Act; in danger of extinction throughout all or a significant portion of its range.

FT – Listed as Threatened under the Federal Endangered Species Act; likely to become an endangered species within the foreseeable future.

FSC – Federal Species of Concern.

CE – Listed as Endangered under the California Endangered Species Act; prospects of survival and reproduction are in immediate jeopardy from one or more causes.

CT – Listed as Threatened under the California Endangered Species Act; not presently threatened with extinction but likely to be endangered in the foreseeable future in the absence of special protection and management efforts.

CSC – California Species of Concern.

MBA – Migratory Bird Treaty Act.

H – Habitat – level survey.

I – Individual presence/absence survey and habitat – level survey.

Source: CDFG 1994, 1999; Hennyand Blus 1981.

Reptiles and Amphibians

There is suitable habitat within or adjacent to the project route for two species listed under the Federal Endangered Species Act. They are the Endangered arroyo southwestern toad (*Bufo microscaphus californicus*), which is also a species of special concern in California; and the Threatened desert tortoise (*Gopherus agassizii*) which is also listed as California Threatened. (See Biological Evaluation for more detail.)

Arroyo southwestern toad. Arroyo toads inhabit semi arid regions near washes or intermittent streams. They can be found in valley foothills, desert washes, and desert riparian areas (CDFG 1999). The Arroyo toad utilizes rivers with sandy banks, willows, cottonwoods, sycamores, and the loose gravel areas of streams in the drier portions of its range (CDFG 1994). Assumed occupied habitats are identified in the Biological Evaluation.

No surveys were conducted because occupancy would be assumed for these areas.

Desert Tortoise. Desert tortoises are most common in desert scrub, desert wash, and creosote scrub habitats below an elevation of 5,000 feet. They require friable soil for burrow and nest construction (CDFG 1999). The project route crosses potential habitat from Ocotillo to Seeley in Imperial County, and from Brunt's Corner along Highway 78 in Imperial County to Palo Verde in Riverside County. No live tortoises or active burrows were found anywhere in the road ROW or in the 100 foot-wide Zone of Influence outside of the road ROW. One live tortoise and one active burrow were found in the 300 foot Zone of Influence. Tortoise sign, including carcasses, were found sporadically in the road ROW and in both Zones of Influence. Details of the survey and results can be found in the Biological Evaluation.

Invertebrates

One species of invertebrate, the **Quino checkerspot butterfly** (*Euphydryas editha quino*), is Federally Endangered. Suitable habitat occurs in the coastal ranges of San Diego, Orange, and Riverside counties in California with metamorphic soils such as serpentine. Full protocol surveys were conducted in 2000 (USFWS 2000). No adults or larvae were found in any of the locations surveyed. (See Biological Evaluation for more detail.) No individuals were found in any of the surveys. Details of surveys can be found in the Biological Evaluation.

3.4.2.2 Impacts on Wildlife

General Wildlife Habitat

The major habitat types the proposed action may affect are abundant outside of the project study area, and the linear nature and location of the route would disturb a small amount of marginal habitat relative to the amount of high quality habitat available locally and project-wide outside of the project corridor. Short-term fragmentation of wildlife habitat can be expected. Construction activities would temporarily displace wildlife from the marginal habitat areas of open trench construction. Noise and human activity would cause most wildlife species to avoid an area until the disturbance conditions were eliminated. The open trench would fragment movement corridors for some species, but the trench would only be open for approximately one day and then filled in. No impact is expected with the implementation of resource protection measures and mitigation measures outlined in Section 2.6 and Appendix F, respectively.

The potential long-term impacts on wildlife may include the loss of habitat and palatable vegetation with the invasion of weedy species. However, this impact is expected to not be significant because the project lies along an existing road corridor where the habitat is already weedy, non native, highly disturbed, and subject to continuous disturbance by road ROW maintenance, OHV traffic, pedestrian traffic, and military activities.

Special-Status Wildlife Species

Impacts on federally and state listed wildlife species are temporary and minimal. Measures in addition to those specified in the project description (Section 2) and those found in Appendix F may be identified as part of project permits (e.g., Section 404, CDFG 1603 Streambed Alteration Agreement) and would be implemented as part of the proposed project and monitored during construction to ensure compliance. Taking into consideration the proposed methods of construction, proposed mitigation measures found in Appendix F, and survey results, BLM has concluded that there would be no effect on all Threatened, Endangered, and Candidate species except for the desert tortoise and arroyo toad. For the desert tortoise, given the survey results, it is unlikely that there would be any adverse impact on the species or its habitat. However, because there is a small possibility that a tortoise could be injured or killed if it moved into the project area during construction, formal consultation would occur with USFWS to determine the effect of the project on this species. For the arroyo toad the project construction corridor crosses and is adjacent to areas of critical habitat. Arroyo toads may move as far as one-half mile from riparian areas to estivate in upland areas. Given the highly disturbed nature of the roadside area where construction is proposed, it is very unlikely that the toads would estivate in the road shoulder even though it is within a half-mile radius of a riparian area with potential habitat. Given the potential impacts of this project with its incorporated mitigation measures, the presence of critical habitat adjacent to the project and the potential for southwestern arroyo toads to occupy upland habitat near the road shoulder, this project may affect the southwestern arroyo toad, and formal consultation with USFWS would occur to determine the effect of the project on this species.

3.4.3 Soils – Link Four

3.4.3.1 Affected Environment

The proposed route traverses various soil types in California within Riverside, Imperial, and San Diego counties. Soil areas are identified by the United States Department of Agriculture (USDA). County-specific soils reports are available (Bowman 1973; USDA 1981, 1973, 1972, 1969; Zimmerman 1981). A variety of coarse granular and fine grained type soils are encountered along the route, which have a moderate to high erosion potential on steeper ground and a low to moderate potential on flat ground.

3.4.3.2 Impacts on Soils

Erosion control measures specified in the SWPPP are a major feature of the project's construction plans (See construction and resource protection methods described for this project in Section 2). The residual impacts of the project with mitigation measures in place are those related to surface disturbance during construction. Certain project activities, including installation of conduit, handholes, and Op Amp facilities have the potential to locally increase erosion and reduce the productivity of the soils in the short term. These impacts are not considered significant based on the mitigation measures in the SWPPP that would be implemented by AT&T.

3.4.4 Cultural Resources – Link Four

3.4.4.1 Affected Environment

Cultural Setting

The generally accepted chronology of the Link Four project area is based on the pioneering work of Malcolm Rogers in San Diego County and in the Colorado and Sonoran Deserts (Rogers 1939, 1945, 1966), as well as subsequent studies by Weide and Barker (1974), Crabtree (1981), and Schaefer (1994). Five successive time periods with distinctive cultural patterns are generally accepted, extending back at least 12,000 years: 1)

Paleoindian (San Dieguito); 2) Archaic (La Jolla, Pinto and Amargosa); 3) Late Prehistoric (Patayan); 4) Ethnohistoric; and 5) Historic.

Most of the aceramic artifact scatters, rock features, and cleared circles identified within the Colorado Desert have been assigned to Phase III, the last and most technologically complex of the San Dieguito Complexes (Rogers 1939, 1966). This appears to have been an adaptation consisting of small mobile bands exploiting game and collecting seasonally available wild plants. The following La Jolla, Pinto, and Amargosa Complexes are regional specializations within the broader hunting and gathering adaptation that characterized the Archaic Period. These complexes occur more frequently in the northern Great Basin, Mojave Desert, Sonoran Desert east of the Colorado River, and coastal Southern California. Some late Archaic sites are known along the boundary between the low desert and Peninsular Range and at more favored habitats; and there are high numbers along the coastal margins of San Diego County.

The major innovations of the Late Prehistoric or Patayan Period are the introduction of pottery making by the paddle-and-anvil technique and the introduction of floodplain agriculture, both at around 1,200 BP (Rogers 1945). Both advancements were introduced from either Mexico or via the Hohokam culture of central Arizona (Schroeder 1975, 1979, Rogers 1945, McGuire and Schiffer 1982).

Ethnohistorically, the Kamia/Kumeyaay, Quechan, and Halchidhoma used this area. The Kamia and Kumeyaay traditionally occupied the southern portion of the Salton Trough and southern San Diego County. These groups probably shared similar religious, kinship, and technological traditions and are depicted primarily as hunters and gatherers but some groups, especially those in the Imperial Valley, may have practiced widespread and intensive agriculture involving transplantation and cultivation of several native plant species (Gifford 1931:21-22; Shipek 1989). Most groups moved to different areas on a seasonal basis to capitalize on particular crops such as acorns or agave. The Quechan and Halchidhoma were riverine adapted, Hoka/Shoshone-speaking populations who practiced agriculture and exploited a wide range of faunal and wild floral resources.

Except for occasional travelers passing through the area, the project area remained peripheral to human activities after the first Spanish contact in AD 1540. Yuma was the focus of most activity during the three historic phases of Euro-American development: Spanish imperialism and missionization (1540-1821), Mexican and American frontier development (1821-1881), and post railroad modernization (1881-present). In addition, two major trails led from the Colorado River to the coast, the Halchidhoma or Cocomaricopa Trails and the Yuma Road.

Cultural Resources Identified in Link Four

A cultural resource records search and pedestrian survey were conducted. These were designed to assess previous survey coverage and to identify cultural resources within the project area, particularly those resources within the APE that might be adversely impacted by installation of the fiber optics conduit.

The records search identified 149 previous surveys covering portions of the half-mile fiber optics conduit corridor, as well as 424 previously recorded cultural resources. Ten new resources were discovered during the present survey. In addition, the fiber optics conduit crosses three unrecorded historic canals, two historic railroad lines, and parallels a portion of old Highway 80, a historic highway. Of the 440 total resources in the project area, 60 of these resources are located within in the APE. Of the 60 cultural resources located within the project APE, 42 are prehistoric archaeological sites, 14 are historic sites, and four are multi-component sites. This includes several highly important Late Prehistoric village sites, some of which are known to contain cremations and deeply buried inhumations. Adverse impacts to eight National Register eligible resources located within the APE should be avoided. Twenty-two previously recorded resources, the historic component of one previously recorded multi-component resource, and seven newly discovered sites are considered ineligible for the National Register. Many of these resources have been mitigated by data recovery (or evaluation) or destroyed by construction activities. Nineteen previously recorded resources, the prehistoric component of one previously recorded multi-component resource, and three newly discovered sites are considered potentially National Register eligible.

3.4.4.2 Impacts on Cultural Resources

Cultural resources are non-renewable and easily damaged. Damage can occur through ground disturbance, casual site visitation, and/or theft and vandalism. The potential for unauthorized collection of artifacts, minor displacement of artifacts by vehicles, and other adverse effects to cultural resources increases with additional work within the ROW. Direct impacts on cultural resources can occur as a result of development activity, including construction and maintenance. An undertaking is regarded as having an effect on a cultural property if it alters any of the characteristics that qualify it for inclusion in the NRHP.

The sites identified during this study have been previously subject to construction and maintenance activities and have received some level of impact. Direct physical impacts on culturally significant and potentially significant sites would occur during ground disturbing activities related to this project. Impacts would be reduced to less than significant levels through implementation of measures described in the project description of this EA and a treatment plan, developed in cooperation with BLM Archaeologists and SHPOs.

All cultural resource sites identified within the APE (the area within 40 feet from the road edge) would be evaluated for eligibility to the NRHP. Ten sites were evaluated for eligibility. Treatment of eligible properties would be determined in consultation with the SHPO and consulting parties, if appropriate. It is expected that all sites determined to be eligible would be either avoided by project modification (by adjusting the location of the conduit or by boring under the site) or mitigated. Construction may be monitored by an archaeologist in selected areas and, in such cases, the Cultural Resources Monitoring and Discovery Plan would be followed.

Table 3-22 contains a summary of the cultural resources identified with the APE.

Table 3-22 <i>Cultural Resources Documented – Link Four</i>			
Site # (CA- or P-)	Site Type	NRHP Eligibility¹	Recommendations
RIV-5191/H	Historic Bradshaw Trail	I	Construction monitoring
IMP-117	Scattered occupation debris (Yuman)	I (within APE)	Construction monitoring
IMP-398	Prehistoric trail, artifacts	I	Pretrenching, then monitoring or avoidance
IMP-816	Habitation site w/midden	P	Pretrenching, then monitoring or avoidance
IMP-888	Trail	I	Construction monitoring
IMP-926	House ring	I	Construction monitoring
IMP-2545	Artifact scatter/bedrock milling	P	Pretrenching, then monitoring or avoidance
IMP-2546	Milling slick	P	Pretrenching, then monitoring or avoidance
IMP-3394H	LA to Yuma crossroads	I	Construction monitoring
IMP-3690	Lithic scatter	I	Pretrenching, then monitoring or avoidance
IMP-4252	Artifact scatter/FAR	I	Construction monitoring
IMP-4384	Trail, cairn, geoglyph	I	Construction monitoring
IMP-4638	Rock shelter	I	Construction monitoring
IMP-4977	Lithic scatter (mult. loci)	I	Construction monitoring
IMP-5386	Lithic scatter	I	Construction monitoring
IMP-5387	Geoglyph	I	Construction monitoring
IMP-5388H	Military camp	I	Construction monitoring
IMP-5389	Chipping station	I	Construction monitoring
IMP-5390/H	Multi-component site	I	Construction monitoring
IMP-5391H	Military camp	I	Construction monitoring
IMP-5392	Prehistoric trail	I	Construction monitoring
IMP-5873	Prehistoric trail	I	Construction monitoring
IMP-6691	Chipping stations	I	Construction monitoring
IMP-6912	Lithic scatter	P	Pretrenching, then monitoring or avoidance
IMP-6972	Lithic/ceramic scatter	I	Construction monitoring
IMP-7572	Trail, artifacts	I	Construction monitoring

Table 3-22 <i>Cultural Resources Documented – Link Four</i>			
Site # (CA- or P-)	Site Type	NRHP Eligibility ¹	Recommendations
IMP-7779	Chipping station	I	Construction monitoring
SDI-80	Village site	P	Pretrenching, then monitoring or avoidance
SDI-80H	Boulder Oaks Resort and RV Park	I	Construction monitoring
SDI-145	Unknown prehistoric	I	Construction monitoring
SDI-4455	Midden	P	Pretrenching, then monitoring or avoidance
SDI-4477	Artifact scatter/bedrock milling	P	Pretrenching, then monitoring or avoidance
SDI-4787	Artifact scatter/bedrock milling	I (within APE)	Construction monitoring
SDI-4798	Artifact scatter/midden	P	Pretrenching, then monitoring or avoidance
SDI-6706	Prehistoric village	E/L	Avoidance
SDI-7027(I)	Isolated flakes (2)	I	Construction monitoring
SDI-7060	Artifact scatter	P	Pretrenching, then monitoring or avoidance
SDI-8072	Artifact scatter	I	Pretrenching, then monitoring or avoidance
SDI-8239	Temp. camp (?)	P	Pretrenching, then monitoring or avoidance
SDI-8314	Chipping station	I	Construction monitoring
SDI-8430	Large quarry	P	Pretrenching, then monitoring or avoidance
SDI-12,946	Bedrock milling/artifact scatter	P	Pretrenching, then monitoring or avoidance
SDI-14,420	Lithic scatter	P	Pretrenching, then monitoring or avoidance
SDI-14,422	Artifact scatter	P	Pretrenching, then monitoring or avoidance
P-016279	Cabrillo Freeway	E/L	Avoidance
No #	Coachella Canal; East Highline Canal; Westside Main Canal	E/L	Avoidance
No #	SD&AE Railroad; U.S. Gypsum Railroad	I	Construction monitoring
No #	Old US-80	I (within APE)	Construction monitoring
ASM-1 ²	Historic trash dump (3 loci)	I	Construction monitoring
ASM-2 ²	Historic trash dump	I	Construction monitoring
ASM-3 ²	Historic trash dump	I	Construction monitoring
ASM-4 ²	Historic trash dump	I	Construction monitoring
ASM-5 ²	Artifact scatter	I	Construction monitoring
ASM-6 ²	Artifact scatter	I	Construction monitoring
ASM-7 ²	Artifact scatter	I	Construction monitoring
ASM-8 ²	Artifact scatter	I	Construction monitoring
ASM-9 ²	Lithic scatter	P	Pretrenching, then monitoring or avoidance
ASM-10/H ²	Lithic scatter/historic dump	P	Pretrenching, then monitoring or avoidance

¹ E/L=determined eligible/listed, I=ineligible (destroyed, tested, or categorically), P=potentially eligible

² Trinomial assignment pending.

3.4.4.3 *Native American Consultations*

As part of the requirements under NEPA, the National Historic Preservation Act and the American Indian Religious Freedom Act, notification and requests for comment were sent to appropriate Native American Tribes by the BLM. The letter notified the Native American groups of the proposed project and provided the opportunity to express comments and concerns. Telephone calls to the tribes were also made as a follow-up. Consultation has taken place with the California Native American Heritage Commission (NAHC) to determine if the conduit route is located near any sites listed in the NAHC's Sacred Lands lists and to request names and phone numbers of Native Americans with knowledge of these and similar sites. All people listed by NAHC were contacted by letter and telephone. No Native American concerns have been identified to date. A summary of consultations and contacts is provided in Section 4.

3.4.5 Visual Resources – Link Four

3.4.5.1 Affected Environment

The proposed fiber optic conduit route is located in existing road and utility ROW that spans a large three-county area. Due to the large area involved, the proposed route has numerous surrounding land uses and features. As a result, the visual setting along the project also varies and includes urban, rural, desert, and agricultural landscapes.

The ROW itself lacks vegetation, consistent with its maintained roadside character, along the entire route, although there are some areas in the ROW with sparse weed vegetation. Other common features are existing utility and highway markers, utility poles, guard rails, and property fencelines.

3.4.5.2 Impacts on Visual Resources

The installation of fiber optic conduit would have no long-term impact on visual resources because the fiber optic conduit and associated access facilities would not be visible once installed underground. There may be some short-term, temporary impacts associated with construction activities. Construction activities generally progress at a rate of 0.5 to 1 mile per day; therefore, it is anticipated that any visual impacts would only be noticeable for less than one week in any given area. Utility markers are 4 foot white plastic poles with a 6 inch orange cap and a one-call locate number to identify cable location (see Figure 2-10). The utility markers would be visible from the roadway, but their impact would be minimal in combination with already-permitted utility markers present.

Five new Op Amp facilities are tentatively planned for construction near the following communities: Blythe, Mitchell's Camp, Brunt's Corner, Ocotillo, and Pine Valley. These sites are typically located on small tracts of private land (1 to 2 acres) and as close to the on-ROW facilities as possible. The stations may have a limited impact on visual setting because these facilities are aboveground structures and typically visible from nearby roadways. There would be no impact on BLM properties since these facilities would be located on private property. Visual impacts of the new construction would be minimal and dictated by the terms of the conditional use permits issued by the counties in which the facilities are sited.

3.4.6 Land Use and Range Resources – Link Four

3.4.6.1 Affected Environment

Link Four crosses three California counties: Riverside, Imperial, and San Diego. The route also travels through a number of cities and small towns including Blythe, Palo Verde, Brawley, El Centro, Plaster City, Ocotillo, Pine Valley, Alpine, El Cajon, La Mesa, and San Diego. The conduit would be located in public road and utility ROW. Five Op Amp facilities would be constructed in the vicinity of Blythe, Mitchell's Camp, Brunt's Corner, Ocotillo, and Pine Valley along the proposed route.

Land management status along Link Four is presented in Table 2-1. The land use plan that applies to a majority of the public land in the project area is the CDP. The CDP is composed of 25 million acres, of which 10 million acres are public land. The proposed route crosses through Multiple-Use Classes "L" (Limited), "M" (Moderate), and "I" (Intensive) as designated in the Desert Plan. In all three classes, "new gas, electric, water transmission facilities, and cable for interstate communication may be allowed only within designated corridors" (BLM 1999). An amendment is required for this project to conform to the Desert Plan and is part of the proposed action.

Each county also has a comprehensive management plan for zoning and land use. While installation of a utility in a public ROW is not generally subject to zoning, the construction of the Op Amp facilities is subject to a conditional use permit. All construction would be subject to the conditions of state and local permits.

There are no range allotments near the proposed route.

3.4.6.2 Impacts on Land Use and Range Resources

There would be no conflict with the Desert Plan since the proposed action entails an amendment to the Desert Plan. There have been other amendments to the Desert Plan to accommodate fiber optics in the roadside. Permitting this action along public highways would not impair BLM's ability to administer or manage the land nor would it interfere with the road owner's ability to control and manage transportation.

There would be no impact on local range resources.

3.4.7 Recreation and Wilderness – Link Four

3.4.7.1 Affected Environment

The remote nature of portions of the project route is conducive to abundant recreation opportunities and wilderness resources, many of which are found on public land. Resources immediately adjacent to the project area include: Oxbow Recreation Site, Cibola NWR, Imperial Sand Dunes Recreation Area, Osborne Overlook, North Algodones Dunes Wilderness Area, Sunbeam Lake County Park, Plaster City OHV Area, Yuha Desert Recreation Area, Jacumba National Cooperative Land and Wildlife Area, and Boulder Oaks Campground. The project itself, however, is located within the road ROW, which does not possess any recreational or wilderness resources.

3.4.7.2 Impacts on Recreation and Wilderness

Most of the recreational or wilderness resources found in the general vicinity of the conduit route would not be affected by the project because they are located at a sufficient distance to avoid impacts. On a short-term, temporary basis, construction activities could cause delays to visitors reaching sites. Traffic control measures specified in a traffic control plan would be implemented to reduce potential impacts to travelers on public roads. In addition, the temporary presence of construction crews and equipment in the area may lower the quality of the recreational experience for some visitors. With the construction and resource protection methods outlined in Section 2, impacts on recreational and wilderness resources would be temporary and would not be significant. There would be no impact on recreational resources once the conduit has been installed. The Op Amp facilities are not located close to any recreational resources.

3.4.8 Socioeconomics – Link Four

3.4.8.1 Affected Environment

Reservation Lands

Link Four travels through two reservations (Campo and LaPosta) and skirts another (Viejas). The Viejas reservation has developed a large casino and factory outlet complex, while the other two reservations have not. Population of these areas is small, with 16 people occupying the La Posta, 270 the Campo, and 281 on the Viejas Reservations (California Department of Finance, Demographic Research Unit 2000).

Population

The route from Blythe to San Diego crosses three California counties: Riverside, Imperial, and San Diego with a total population of about 4.4 million, of which more than 85 percent is urban. (California Department of Finance, Demographic Research Unit 2000).

Employment

Unemployment rates in the counties are shown below in Table 3-23.

<p style="text-align: center;">Table 3-23 <i>Unemployment by Counties, 2000—Link Four</i> <i>(California EDD 2000)</i></p>	
County	Unemployment rate in March 2000 (not adjusted)
Riverside	4.7%
Imperial	17.7%
San Diego	2.7%

The unemployment rate in Imperial County, though very high, has steadily decreased from a (seasonally adjusted) high of 29.5 percent in 1996 to 23.2 percent in 1999. Most employment in Imperial County is related to the agricultural production of the Imperial Valley and is both seasonal and unreliable in nature.

3.4.8.2 Socioeconomic Impacts

Since the conduit would be laid in the road shoulder and since there are no dwellings nearby, there would be no impact on reservation residents during construction. There are no aboveground facilities planned for Reservation land. There would be no impact on permanent populations.

Local employment opportunities would increase temporarily during construction. Not only would skilled construction workers be sought in the local labor markets, but also short-term employment would be available for traffic control, monitors, and inspectors. There would be temporary increases in demand for service-related industries such as hotels, motels, restaurants, etc., while the construction crews were working in an area. This would have no overall effect on employment rates in either the tribal lands or within the three counties.

3.4.8.3 Environmental Justice

Environmental justice has been addressed in accordance with Executive Order 12898. Effects on minorities and Native Americans were considered in this project. The construction of this project through tribal lands does not have either a positive impact or a negative one. No aboveground facilities (i.e., Op Amp facilities) are located on or near tribal lands. All aboveground facilities are located on parcels purchased or leased from willing landowners. Implementation of the project would result in no disproportionate effects on minorities or Native Americans.

3.4.9 Water Resources – Link Four

3.4.9.1 Affected Environment

The project route lies primarily in semi-arid to arid conditions, with annual precipitation for the 1999 water year ranging from 1.26 inches in the Blythe to 7.83 inches near the downtown San Diego portion of the route. Rainfall in the east occurs primarily from November through April and August through September, while rainfall around San Diego occurs primarily from November through February. Throughout the route, precipitation is extremely variable within any given year and from year to year.

The project route traverses two regional basins, the San Diego Basin Region and the Colorado River Basin Region. A number of surface water resources occur within the project area. These include irrigation structures in the agricultural lands near Blythe and El Centro. Most drainages are intermittent or ephemeral. Drainages that are crossed by Link Four, as well as jurisdictional wetlands, are shown in Appendix J-1.

3.4.9.2 Impacts on Water Resources

Where the project route ROW crosses wet surface water resources, the conduits would be installed with directional boring. Bentonite, a naturally occurring clay compound, is used during boring operations to lubricate the bore, seal the borehole, and help remove cuttings from the borehole. Although unlikely, the bentonite/water mixture can seep to the surface within a stream channel if bores encounter fractures in the underlying rock and bentonite pressures are great enough to allow the material to surface. Bentonite is not a toxic substance, but if released into a waterway it can cause a temporary increase in turbidity levels. Aquatic and terrestrial wildlife exposures to bentonite, if a fracture is encountered, are expected to be short-term. No significant impacts are expected from the infrequent but unpredictable bentonite escape.

With the full implementation of the SWPPP, the potential for sediment contamination of watercourses is minimized. The construction area would be disturbed, however, and vegetation could take years to reestablish. Therefore, there is an increased risk of wind erosion and subsequent deposition into watercourse. The impact of wind erosion to watercourses is not significant over the whole project.

Based on a construction corridor width of 25 feet, the project would temporarily impact approximately 4.8 acres of waters of the US, all of them dry washes that would be trenched or plowed. Construction activities would temporarily affect these areas and no waters of the U.S. would be filled.

3.4.10 Air Quality and Noise – Link Four

3.4.10.1 Affected Environment

Air Quality

The proposed project has the potential to affect three air basins in the region: the Mojave Desert, Salton Sea, and San Diego County air basins. The pollutants of greatest concern along the pipeline route are CO, ozone, and PM₁₀. All three air basins are in nonattainment as a state level for ozone and particulate matter (California Air Resources Board 1999).

Noise

The main source of noise in the project area is vehicular traffic on regional roadways. The proposed route is immediately adjacent to two moderately used state highways (Old Highway 80 and Highway 78) and also to Interstate 8. Old Highway 80 and Highway 78 experience some commercial truck traffic. Traffic is heavier from early spring to late fall due to increased recreational use during the summer months, including large recreational vehicles and trailers pulled by medium to large personal vehicles and pickup trucks.

3.4.10.2 Impacts on Air Quality and Noise

Air Quality

During on-ROW construction activities, the project would result in emission of CO, ozone precursors, and PM₁₀ from equipment exhaust and fugitive dust releases. However, project-related emissions are not expected to exceed district-specific conformity thresholds. Construction activities would be temporary in nature and fugitive dust releases would be minimized by standard dust control mitigation measures to be implemented by the project. The following measures would be implemented to reduce the potential impacts from CO, ozone, and particulate matter:

- Use low-emission construction equipment and/or reformulated fuel
- Water construction areas, as needed, to minimize visible dust emission
- Reestablish ground cover on construction site consistent with requirements of the SWPPPs

- Maintain truck and equipment engine in good running condition
- Clean equipment daily, or as needed to reduce tracking of soil onto adjacent roads

While these measures would not eliminate potential air quality impacts, the impacts are expected to be less than significant because construction emission sources would be intermittent and mobile in nature, and each construction crew would be separated by several miles.

The backup diesel generators at the Op Amp facilities would release ozone precursors and CO during electrical outages. The diesel generators would be operated one hour a month for testing and be needed for an estimated 10 hours per year during power outages. Emissions would be controlled as required by the air quality control board permits. All Op Amp facilities meet local permitting requirements for Air Quality.

Noise

Construction-related noise would briefly exceed ambient noise levels (defined as the usual vehicular traffic noise on the roads along the route). Most of the installation along this route would be accomplished by plowing. Since average speed of installation is 0.5 mile per day, noise impacts would occur on only one day in most areas. The noisiest type of installation is rock sawing or trenching through rock. Since it is also the slowest installation method, it is expected that noise impact from rock work to last up to three days for any given area. No noise associated with the operation or maintenance of fiber optic cables exceeds ambient noise levels.

There is the potential for minor, short-term noise impacts during power outages from the operation of the backup diesel generators at the Op Amp facilities. The measured sound performance for the backup generators averages 91-92 dB(A) at 7 meters in unhooded conditions (Cummins data sheet 1994). Noise levels would be reduced by enclosure and additional soundproofing to meet local zoning requirements.

3.4.11 Geology and Minerals – Link Four

3.4.11.1 Affected Environment

The proposed cable route for the alignment traverses two geologic provinces of California. From Blythe to El Centro, the route traverses the Salton Trough province and from El Centro into San Diego the route crosses the southern Peninsular Range province. The proposed route does not traverse any reported mineral resources including any rock, sand, or gravel operations, though commercial sources of these minerals are found close to the route.

Faulting

Both provinces exhibit a strong northwest structural grain that is attributed to major fault activity along the active right-lateral slip San Jacinto (includes Wienert, Brawley, and Imperial fault splays) earthquake fault zone (EFZ). These faults and fault zones are considered to have a high potential for surface displacement and ground shaking. For the purpose of the Alquist-Priolo Act, an active fault is defined by the California State Mining and Geology Board as one which has “had surface displacement within Holocene time (within 11,000 years).” Table 3-24 identifies areas where the proposed route crosses three EFZs at the following locations:

Table 3-24 <i>EFZs—Link Four</i>					
Milepost (MP)	ATT Map Sheet	Active Earthquake Fault Zone (EFZ) (Hart and Bryant 1997)	Most Recent Activity	Annual Slip Rate	Maximum Displacement and Direction During Last Event (Jennings 1994)
89-86	36	Brawley (northeast splay of Imperial fault)	1979	20mm/yr	15cm vertical
93-89	38	Imperial	1979	15-20mm/yr	55cm right lateral
105-100	42	Weinert (southern extension of Superstition Hills fault)	1987	1-6mm/yr	80cm right lateral

3.4.11.2 Impacts on Geology and Minerals

There would be no impact from the proposed action on geologic or mineral resources and there would be no adverse impact on the project from seismic movement.

3.4.12 Human Health and Safety – Link Four

3.4.12.1 Affected Environment

Hazardous Materials

There is the potential for hazardous materials in the project area, in particular UXO within military bombing ranges. There is also limited potential for the presence of hazardous materials resulting from releases on nearby highways or migration from adjacent properties including underground storage tanks (USTs) in urban and suburban areas.

Observations during the field inspection indicated that subsurface hazardous materials might be encountered during construction. A Phase I Environmental Site Assessment would be conducted prior to construction. Depending on the Phase I findings, soil testing may be required to define the nature and extent of soil contamination, if any. During construction, the construction team may encounter unexpected materials that may be considered hazardous waste (e.g., contaminated soils or groundwater, abandoned asbestos pipe, abandoned USTs and associated piping, or undocumented landfills and dumps) after they are exposed. Procedures for proper handling and disposal are established by federal, state, and local regulations. The potential for public or environmental exposure to hazardous materials would be less than significant impact.

Traffic

Project installation is to take place along public highways and county roads. There is significant motor vehicle use of these roads, although most of them are not major arterials. Recreational vehicle use is high for both Highways 78 and 80.

3.4.12.2 Impacts on Human Health and Safety

Hazardous Materials

Exposure to UXO would be limited through safety training, consultation with military personnel, and obedience of posted exclusion areas. No construction would cross known UXO areas. Appendix C contains measures detailing response to other hazardous materials discovered unexpectedly during construction. This plan also details control measures to limit or eliminate human health or safety impacts during refueling and servicing of construction equipment and the Op Amp facilities. Implementation of these measures would reduce potential impacts to insignificance.

Traffic

A traffic control plan would be adopted for the project that details standard traffic control and flagging measures to be implemented around construction sites. Adherence to the plan would minimize any potential impacts of vehicular accidents in construction zones and also reduce the impact of construction to the traveling public by eliminating or greatly reducing safety concerns. Implementation of a traffic control plan would reduce potential impacts to insignificance.

3.5 LINK FIVE – SAN DIEGO, CALIFORNIA TO LOS ANGELES, CALIFORNIA

3.5.1 Vegetation – Link Five

3.5.1.1 Affected Environment

Vegetation community types include coastal sage scrub, mixed chaparral, chamise chaparral, vernal pools, oak woodland, wetland and riparian, disturbed weedy, and grassland.

Plant Species

Information on occurrences of state and federally protected plants in the project study area was obtained initially from the CNDDDB [California Department of Fish and Game (CDFG) 1999] and through reconnaissance-level surveys of the project route. Additional information on species' habitat requirements, blooming periods, and field identifying characteristics was obtained from state flora guides (Munz and Keck 1973; Hickman 1996) and from the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994). Federal, state, and local resource specialists, including the BLM, USFWS, CDFG, and San Diego County were also contacted to obtain information on threatened and endangered plants. Appendix K-1 contains a list of plant species potentially located along Link Five.

San Diego Thorn Mint (*Acanthomintha ilicifolia*) was the only special status plant species for which surveys were needed since no other special status plant is known to occur in the proposed construction corridor. No individuals were found in the surveys. Details of areas surveyed can be found in the Biological Evaluation.

3.5.1.2 Impacts on Vegetation

There would be no impacts on special-status species because none is present in the construction corridor. For 140 miles (93 percent of the route), there would be no impacts on any vegetation because the construction would occur within pavement. Where construction would occur in unpaved roads or in road shoulder, the impacts on native vegetation would be very few or none since routine road maintenance eliminates most vegetation.

Typically, invasive non-native plant species increase in population with projects like this one because disturbance increases the opportunities for spread and establishment. Proposed project methods described in Section 2.4.2.6 would minimize the spread and establishment of invasive non-native species into uninfested areas.

3.5.2 Wildlife – Link Five

3.5.2.1 Affected Environment

General Wildlife Habitat

The proposed fiber optic cable alignment between San Diego to Los Angeles crosses several wildlife habitat types that are influenced by factors such as elevation, soil, climate, and man-induced activities. These habitat types include urban and suburban lands, agricultural lands, chaparral/coastal sage scrub mix, riparian or wetland areas, and open water.

Special-Status Wildlife Species

To determine presence of potential habitat for special-status wildlife species, existing and available information, including RMPs and other environmental documents prepared for similar projects in the project study area were reviewed to determine the locations and types of wildlife resources that could exist in the project study area associated with Link Five (See Appendix K-1). Information on species occurrence also was gathered from statewide databases through contacts with the CNDDDB (CDFG 1999). Contacts were made with species experts and resource specialists from BLM, CDFG, and USFWS to gather file information on wildlife resources in the project study area, including mapped and database information.

Suitable habitat is present adjacent to the construction corridor for certain state and federally protected species. Qualified wildlife biologists conducted protocol and habitat based field surveys in the project study area from March through June 2000 for certain state and federally protected species listed below. Detailed results of the surveys are found in the Biological Report in the project records on file in the BLM area office in Riverside. General results are presented here. Table 3-25 summarizes special-status species surveyed along the project route. Details of habitat and species found may be found in the Biological Evaluation.

Birds

Least Bell's Vireo. Least Bell's vireos are primarily found from Santa Barbara County southward to northern Baja California, Mexico. The majority of the breeding population is found on major drainages at Camp Pendleton. Individuals occur in coastal San Diego, and Orange counties. The least Bell's vireo is restricted as a breeder to riparian woodlands, nesting primarily in willow thickets, but occasionally using other riparian trees and shrubs (USFWS 1997). Survey results demonstrated the presence of several individuals. Details of habitat and location can be found in the Biological Evaluation.

Southwestern Willow Flycatcher. This Neotropical subspecies of the willow flycatcher breeds in the southwestern United States and northwest Mexico. High-quality willow riparian woodland, and in some cases oak riparian woodlands, are the preferred breeding habitat (Foreman 2000). Within San Diego County, breeding populations are restricted to the Santa Margarita River (on Camp Pendleton) and the Upper San Luis Rey River. However, during migration willow flycatchers may be found in any trees or large shrubs throughout San Diego County (Unitt 1984). No individuals were found in any of the surveys. Details of habitat surveyed can be found in the Biological Evaluation.

Table 3-25 <i>State and Federal Protected Wildlife Surveyed—Link Five</i>					
Scientific Name	Common Name	Habitat	Federal	State	Survey Level
Birds					
<i>Polioptila californica californica</i>	Coastal California gnatcatcher	Permanent resident in coastal sage scrub where it prefers relatively dense stands dominated by California sage.	FT	CSC	I
<i>Empidonax traillii eximius</i>	Southwest willow flycatcher	Densely vegetated riparian habitat with streamside cottonwoods and willows.	FE		I
<i>Vireo bellii pusillus</i>	Least Bell's vireo	Riparian thickets either near water or in dry portions of river bottoms. Nests along margins of bushes and forages low to the ground. May also be found using mesquite and arrow weed in desert canyons.	FE	CE	I
<i>Hirundo pyrrhonota</i>	Cliff swallows	Open areas near cliffs, bridges, and buildings. Colonial nesters, sometimes in enormous colonies. Nests sometimes built on cliffs, but usually under bridges, in culverts, and on buildings.	MBA		H

Table 3-25 State and Federal Protected Wildlife Surveyed—Link Five					
Scientific Name	Common Name	Habitat	Federal	State	Survey Level
Reptiles / Amphibians					
<i>Bufo microscaphus californicus</i>	Arroyo southwestern toad	Prefers sandy arroyos and river bottoms with open riparian vegetation in inland valleys and foothills, burrows in upland habitats during the inactive season within 1 km of riparian areas.	FE	CSC	H
Invertebrates					
<i>Euphydryas editha quino</i>	Quino Checkerspot Butterfly	Associated with Plantago erecta of varying densities, sage scrub, and open chaparral. Grasslands, vernal pools, open or sparsely vegetated areas, hilltop ridgelines, rocky outcrops, trails, and dirt roads.	FE		I

Notes:

FE – Listed as Endangered under the Federal Endangered Species Act; in danger of extinction throughout all or a significant portion of its range.

FT – Listed as Threatened under the Federal Endangered Species Act; likely to become an endangered species within the foreseeable future.

FSC – Federal Species of Concern.

CE – Listed as Endangered under the California Endangered Species Act; prospects of survival and reproduction are in immediate jeopardy from one or more causes.

CT – Listed as Threatened under the California Endangered Species Act; not presently threatened with extinction but likely to be endangered in the foreseeable future in the absence of special protection and management efforts.

CSC – California Species of Concern.

MBA – Migratory Bird Treaty Act.

H – Habitat – level survey.

I – Individual presence/absence survey and habitat – level survey.

Source: CDFG 1994, 1999; Hennyand Blus 1981

Coastal California Gnatcatcher. California gnatcatchers occur in extreme southwestern California and Baja California, Mexico. Within the United States, the species is primarily found in San Diego, Orange, and western Riverside counties, having been largely extirpated from Ventura, San Bernardino, and Los Angeles counties. Typical habitat occupied by this bird is coastal sage scrub, maritime succulent scrub, and open chaparral (USFWS 1997). Survey results demonstrated the presence of several individuals. Details of habitat and location can be found in the Biological Evaluation.

Cliff Swallow. During migration cliff swallows are found throughout the length of the state, except for densely forested areas and treeless alpine tundra. Cliff swallows occur in open areas near cliffs, bridges and buildings. Cliff swallows are colonial nesters, sometimes in enormous colonies. Nests are sometimes built on cliffs, but usually under bridges, in culverts, and on buildings. Active swallow nesting colonies are located underneath bridge structures where the fiber optic cable would be attached or directional bored in Los Angeles, Orange, and San Diego counties. Cliff swallows construct mud nests between March and July. Cliff swallows were observed under several structures on Link Five. Details of location can be found in the Biological Evaluation.

Reptiles and Amphibians

Arroyo Southwestern Toad. Arroyo toads inhabit semi arid regions near washes or intermittent streams. They can be found in valley foothills, desert washes, and desert riparian areas (CDFG 1999). The Arroyo toad utilizes rivers with sandy banks, willows, cottonwoods, sycamores, and the loose gravel areas of streams in the drier portions of its range (CDFG 1994). Suitable Arroyo toad habitat exists along the proposed project route in San Diego County along major river systems or tributaries to these systems (Ostheimer 2000). Arroyo toads generally utilize the upper, more remote portions of the watershed.

Invertebrates

Quino Checkerspot Butterfly. This butterfly is one of the larger members of the checkerspot family, with wingspans of around three inches. Eggs are laid in late winter or early spring and hatch in late spring or early summer. After hatching the larva feed until their food plants dry up and then enter a diapause (a type of hibernation) until the following spring when they resume feeding before entering a pupa stage in late summer. The Quino checkerspot ranges from the coastal ranges of San Diego, Orange, and Riverside counties in California and prefer metamorphic soils such as serpentine (USFWS 2000). No individuals were found in any of the surveys. Details of surveys can be found in the Biological Evaluation.

3.5.2.2 Impacts on Wildlife

The immediately impacted environment for the project route is generally road shoulder where there is limited vegetation and wildlife habitat. However, there is suitable habitat for a variety of species adjacent to the road shoulder and the project could have an indirect effect on such habitat.

The potential long-term impacts on wildlife may include the loss of habitat and palatable vegetation with the invasion of weedy species. However, this impact is expected to be low because the only area where installation would occur outside pavement is limited.

Special-Status Wildlife Species

Impacts on federally and state listed wildlife species are temporary and minimal. Measures in addition to those listed in the project description and those found in Appendix F may be identified as part of project permits (e.g., Section 404, CDFG 1603 Streambed Alteration Agreement) and would be implemented as part of the proposed project and monitored during construction to ensure compliance. Taking into consideration all mitigation measures and survey results, BLM has concluded that there would be no effect on any Threatened, Endangered, and Candidate species, with the possible exception of the arroyo toad. Because the project crosses proposed critical habitat for the arroyo toad, informal consultation would occur. Impacts on the arroyo toad are not expected to be significant.

3.5.3 Soils – Link Five

3.5.3.1 Affected Environment

The proposed route traverses various soil types in California within San Diego, Orange, and Los Angeles counties. Soil areas are identified by the USDA. County-specific soil reports are available (USDA 1973, 1978, 1969). A variety of coarse granular and fine grained type soils are encountered along the route, which have a moderate to high erosion potential on steeper ground and a low to moderate potential on flat ground.

3.5.3.2 Impacts on Soils

Because the route is mostly within pavement, impacts on soils are negligible. Where construction would occur outside of pavement, erosion control measures specified in the SWPPP would be installed to minimize soil loss.

3.5.4 Cultural Resources – Link Five

3.5.4.1 *Affected Environment*

Cultural Setting

Archaeological fieldwork along the southern California coast has yielded a diverse range of human occupation extending from the early Holocene into the Ethnohistoric period (Erlandson and Colten 1991; Jones 1992; Moratto 1984). Today, the prehistory of southern California is generally divided into three major temporal periods: Paleo-Indian, Archaic, and Late Prehistoric with localized labels also assigned: San Dieguito for Paleo-Indian, Encinitas Tradition and La Jolla for Archaic, and San Luis Rey for Late Prehistoric (Meighan 1959; Moriarity 1966; Rogers 1939, 1945; True 1966, 1970; Wallace 1978; Warren 1964).

In southern California the Paleoindian (San Dieguito) Period is usually considered to date from at least 10,000 BP until 8,500 to 7,200 BP (Moratto 1984; Warren et al. 1993; Rogers 1966). Assemblages are composed almost entirely of flaked stone tools, including scrapers, choppers, and large projectile points (Warren 1987; Warren et al. 1993) and are differentiated from later periods by the absence of milling tools. It has been hypothesized that the people linked to the San Dieguito complex lived within a generalized hunter-gatherer society with band-level organization. This portrayal is consistent with what has long been considered a continent-wide Paleoindian tradition.

The Archaic period (also referred to as the Early Milling Period) extends back at least 7,200 years, possibly as early as 9,000 BP (Moratto 1984; Rogers 1966; Warren et al. 1993). Early Archaic occupations are most apparent along the coast and the major drainage systems that extend inland from the coastal plains (Moratto 1984). The subsequent Late Prehistoric period is represented in the northern part of the study area by the San Luis Rey complex (Meighan 1954; True et al. 1974), and by the Cuyamaca complex in the southern portion of San Diego County (True 1970). The San Luis Rey complex is the archaeological manifestation of the Shoshonean predecessors of the ethnohistoric Luiseño, Juaneno, and Gabrielino, while the Cuyamaca complex reflects the material culture of the Yuman ancestors of the Kumeyaay. Previously recorded sites within the half-mile corridor tend to be associated with major marine lagoons and estuaries. Site density is relatively high, especially along El Camino Real in the vicinity of Batiquitos Lagoon, indicating long-term, intensive occupation of the area.

The current project area encompasses a region that was most likely used by several ethnohistorically documented tribes, including the Luiseño, Juaneño, and Gabrielino in Los Angeles, Orange and northern San Diego counties, and the Kumeyaay in southern San Diego County. Traditionally, Luiseño territory encompassed an area from roughly Agua Hedionda north to San Juan Capistrano (Bean and Shipek 1978; Kroeber 1925). The region inhabited by various bands of the Kumeyaay was larger, extending from Agua Hedionda lagoon eastward into the Imperial Valley and southward through much of northern Baja California (Almstedt 1982; Gifford 1931; Hedges 1975; Luomala 1978). Although the earliest historical exploration of the San Diego area can be traced to 1542, the widely accepted start of the historical period is 1769 with the founding of the joint Mission San Diego de Alcalá and Royal Presidio. Three historic phases of Euro-American development are usually recognized: Spanish imperialism and missionization (1542-1821), Mexican and American frontier development (1821-1881), and post railroad modernization (1881-present).

Cultural Resources Identified in Link Five (Outside of Camp Pendleton)

A cultural resources inventory was conducted consisting of a records search and pedestrian survey designed to assess previous survey coverage and to identify cultural resources within the project area, and in particular those resources within the APE that might be adversely impacted by installation of the fiber optics conduit. According to records on file at the South Coastal Information Center, 109 archaeological surveys or excavations have been conducted in the vicinity of this segment of the fiber optics conduit project area.

The study of the route indicates that there are a total of 233 cultural resources located within the project study area. Of these, some 40 recorded cultural resources (31 prehistoric archaeological sites, eight historic sites, and one county landmark site) are located in or near the APE of the fiber optics conduit. Of these, 17 have been mitigated and/or destroyed by construction activities and five are assumed to occur well outside the project APE in that they could not be relocated; no further treatment of these sites is required. No new sites were recorded during a reconnaissance survey of the fiber optics conduit running line.

Cultural Resources Identified in Link Five (On Camp Pendleton)

The study indicates that 34 archaeological surveys have been conducted in the vicinity of the Camp Pendleton segment of the fiber optics conduit project area. In addition, there are forty-two previously recorded cultural resources. Of these, 14 prehistoric sites, one historic site, one multicomponent site, and an archaeological district are located within or near the APE of the proposed fiber optics route. No new resources were located during archaeological survey of the fiber optics conduit running line. Nine of the recorded resources within or near the APE have been evaluated as eligible for inclusion in the NRHP, two have been evaluated as ineligible, and eight have not yet been evaluated. Human remains are known to be present at four of these resources.

3.5.4.2 Impacts on Cultural Resources

Cultural resources are non-renewable and easily damaged. Damage can occur through ground disturbance, casual site visitation, and/or theft and vandalism. The potential for unauthorized collection of artifacts, minor displacement of artifacts by vehicles, and other adverse effects to cultural resources increases with additional work within the ROW. Direct impacts on cultural resources can occur as a result of development activity, including construction and maintenance. An undertaking is regarded as having an effect on a cultural property if it alters any of the characteristics that qualify it for inclusion in the NRHP.

General

Measures describing protection for cultural resources are found in the project description. Impact avoidance would be necessary for the 18 cultural resources located within the project APE. In the absence of a Phase II evaluation program, significance would be assumed. In general, the conduit would be shifted within the ROW to avoid all known sites. In addition, monitoring during construction activities in the vicinity of these resources is recommended. There are also several locations within the project area where subsurface cultural deposits may be present although no cultural material was observed on the surface during the present survey. This includes the area along El Camino Real just south of the San Dieguito River and just north of Batiquitos Lagoon.

Camp Pendleton

In general, the fiber optics conduit would be shifted within the ROW to avoid all known cultural resources. Installation of the fiber optics conduit in existing roadways beneath the pavement or road shoulder is expected to have no impact on the majority of cultural resources in the project area. Three resources that are located within or near the fiber optics conduit APE do not contain significant cultural materials and therefore require no further avoidance measures. Six other resources within or near the APE are unlikely to be directly impacted by the fiber optics conduit. Monitoring during construction in the vicinity of these resources is recommended in order to ensure that they would not be impacted. Impacts to the historic California Southern Railroad can be avoided by directional boring beneath this resource. Intact subsurface deposits may be present in or near the APE at nine previously recorded sites. Many of these sites have been determined to be significant resources and some are known to contain human remains. It is recommended that a program of enhanced survey be conducted for these resources in order to determine the existence and depth of possible subsurface cultural deposits within the APE. Once the results of the enhanced survey are known, avoidance measures can be

devised. If avoidance is not feasible, evaluation procedures are recommended to assess significance and resource NRHP eligibility, and gauge potential impacts.

In addition, monitoring during construction activities is recommended for portions of the route that contain a large number of previously recorded resources or that pass through environmentally sensitive areas or areas likely to contain buried subsurface cultural deposits. This includes the vicinity of the Santa Margarita, Las Flores, San Onofre, and San Mateo drainages. In these areas, no deviation from the marked conduit corridor would be permitted. Finally, several portions of the APE have not been previously surveyed or were too densely vegetated to survey practically during the current undertaking. This includes a small portion of the west side of Stuart Mesa Road, both sides of Old El Camino Real from just north of the weigh station on I-5, as well as where the route crosses under I-5. In order to more accurately assess the presence or absence of cultural deposits in these areas the APE would need to be cleared of surface vegetation and resurveyed.

Table 3-26 contains a summary of cultural resources identified in the APE.

Site # (CA- or P-)	Site Type	NRHP Eligibility¹	Recommendations
SDI-608	Midden	I	Construction monitoring
SDI-609	Midden	I	Construction monitoring
SDI-610	Midden	I	Construction monitoring
SDI-611	Midden	I	Construction monitoring
SDI-686A,B,C	Midden	P	Pretrenching, then monitoring or avoidance
SDI-687	Midden	P	Pretrenching, then monitoring or avoidance
SDI-688	Midden	I	Construction monitoring
SDI-696	Midden	I	Construction monitoring
SDI-812/H	Historic ranch house/artifact scatter	E/L	Avoidance
SDI-1074	Shell midden/artifacts	E/L	Avoidance
SDI-1075	Shell scatter	P	Pretrenching, then monitoring or avoidance
SDI-4357	Dense artifact scatter	P	Pretrenching, then monitoring or avoidance
SDI-4538A	Shell midden/artifacts	E/L	Avoidance
SDI-4412	Shell midden/artifacts	P	Pretrenching, then monitoring or avoidance
SDI-4609	Midden	I	Construction monitoring
SDI-4647	Unknown prehistoric	I	Construction monitoring
SDI-4847	Midden	I	Construction monitoring
SDI-4849	Midden	I	Construction monitoring
SDI-4852	Lithic scatter	I	Construction monitoring
SDI-4855	Chipping station	I	Construction monitoring
SDI-4872	Midden/poss. hearths	I	Construction monitoring
SDI-5213C	Habitation site	E/L	Avoidance
SDI-8051	Shell/lithic scatter	I	Construction monitoring
SDI-9973	Lithic/shell scatter	I	Construction monitoring
SDI-10,118	Shell/lithic scatter	I	Construction monitoring
SDI-10,535H	Historic structure/features	P	Pretrenching, then monitoring or avoidance
SDI-10,609	Midden	P	Pretrenching, then monitoring or avoidance
SDI-10,728	Shell midden/artifacts	E/L	Avoidance
SDI-10,842A&B	Shell/artifact scatter	P	Pretrenching, then monitoring or avoidance
SDI-11,787H	Historic refuse	I	Construction monitoring
SDI-12,892H	Historic trash deposit	I	Construction monitoring
SDI-13,320	Shell/lithic scatter	P	Pretrenching, then monitoring or avoidance
SDI-13,321	Shell/lithic scatter	P	Pretrenching, then monitoring or avoidance

Table 3-26 <i>Cultural Resources Documented – Link Five</i>			
Site # (CA- or P-)	Site Type	NRHP Eligibility ¹	Recommendations
SDI-13,904H	Historic trash deposit	I	Construction monitoring
SDI-14,005H	Historic railroad/artifact scatter	E/L	Avoidance
SDI-14,058	Shell scatter	P	Pretrenching, then monitoring or avoidance
SDI-14,500	Shell scatter	P	Pretrenching, then monitoring or avoidance
SDI-14,501	Shell scatter	P	Pretrenching, then monitoring or avoidance
SDI-14,505	Shell scatter	I	Construction monitoring
SDI-14,506	Shell scatter	I	Construction monitoring
P-015714	Lithic scatter	I	Construction monitoring
SMAD	San Mateo Archaeological District	E/L	Avoidance
ORA-21	Burial grounds	P	Pretrenching, then monitoring or avoidance
ORA-22	Shell midden/artifacts	E/L	Avoidance
ORA-188	Shell midden	I	Construction monitoring
ORA-599	Shell midden	I	Construction monitoring
ORA-835	Artifact scatter	I	Construction monitoring
ORA-836	Artifact scatter	I	Construction monitoring
ORA-1107	Midden	I	Construction monitoring
30-120015/30-150083	Historic bunkhouse/irrigation ditch/trees	I	Construction monitoring
30-160126/30-150084/ORA-1271/H	Forster Mansion – Frank Forster House	E/L	Avoidance
30-162531	Mission Cemetery	E/L	Avoidance
30-176615	Historic Hot Springs Rd.	E/L	Avoidance
19-186110	Historic Union Pacific Railroad	E/L	Avoidance
ASM-11 ²	Buried marine shell deposit	P	Pretrenching, then monitoring or avoidance

¹ E/L=determined eligible/listed, I=ineligible (destroyed, tested, or categorically), P=potentially eligible

² Trinomial assignment pending.

3.5.4.3 Native American Consultations

As part of the requirements under NEPA, the National Historic Preservation Act and the American Indian Religious Freedom Act, notification and requests for comment were sent to appropriate Native American Tribes by the BLM. The letter notified the Native American groups of the proposed project and provided the opportunity to express comments and concerns. Telephone calls to the tribes were also made as a follow-up. Consultation has taken place with the California NAHC to determine if the conduit route is located near any sites listed in the NAHC's Sacred Lands lists and to request names and phone numbers of Native Americans with knowledge of these and similar sites. All people listed by NAHC were contacted by letter and telephone. No Native American concerns have been identified to date. A summary of consultations and contacts is provided in Section 4.

3.5.5 Visual Resources – Link Five

3.5.5.1 Affected Environment

The visual setting along Link Five varies, but is predominantly urban in nature. There are particular segments that are characterized by rural residential and coastal landscapes; the visual quality of these areas is high.

The area in and around San Diego is predominantly urban. Traveling north, the visual backdrop of the route gradually turns relatively rural in northern San Diego County and passes by a stretch of rural residential

development. Once the route reaches the coast, the visual quality of the surrounding areas increases dramatically. Near Camp Pendleton, there are mountain areas to the east and a view of the Pacific Ocean to the west. The route also travels through several coastal communities that possess mainly commercial characteristics. In Orange and Los Angeles counties, the visual setting is mainly dense urban development.

3.5.5.2 Impacts on Visual Resources

There is no BLM administered land along Link Five. As a result, there is no potential for impact on visual resources on BLM properties. The analysis of visual resource impacts is based on the relationship between the existing visual setting in the project area (see above) and the characteristics of project construction and operation. Features of the project include installation of fiber optic conduit beneath the ground surface in existing ROW, the construction of two new Op Amp facilities along the route on private land, and the placement of utility markers on the conduit route.

Overall, the proposed project would have a minimal effect on the visual quality of the affected area. The project would have no adverse impact since the conduit would not be visible once installed. Utility route markers are not used in urban areas where the conduit is installed in the roadway pavement. In areas where markers would be utilized, their placement and design would comply with local zoning and ordinance requirements. Therefore, there would be no significant visual impact from utility markers.

The two Op Amp facilities required on this link have a greater potential for visual impacts due to the fact that they are aboveground structures. However, these structures would be required by conditional use and building permits to conform to the existing visual setting. They are both proposed for location in fully built-up urban areas.

For both the conduit installation and the Op Amp facility construction, there would be minor, short-term visual impacts from the presence of construction personnel and equipment. These impacts would affect people in the vicinity of construction activities, but would cease once construction is complete.

3.5.6 Land Use and Range Resources – Link Five

3.5.6.1 Affected Environment

Land Use

Link Five crosses three California counties and numerous cities and towns. All installation would be in existing ROW, which already have been designated as transportation or utility corridors. Adjacent land uses are mostly urban, including both urban residential and commercial operations. There are small segments characterized by rural residential development, and the route also travels through 18 miles of military reserve with few buildings.

3.5.6.2 Impacts on Land Use and Range Resources

Land Use

The on-ROW component of the project would not conflict with existing land uses along the route since the route is already set aside as ROW. The off-ROW Op Amp facilities would require conditional use and building permits that must be obtained from county and city planning and building departments. These permits would require either conformance with the current land use plan or approved minor variation from it; thus, there would be no significant effect on the existing land use environment.

3.5.7 Socioeconomics – Link Five

3.5.7.1 Affected Environment

Population

The route from San Diego to Los Angeles crosses three California counties: San Diego, Orange, and Los Angeles with a total population of about 15.4 million, of which more than 90 percent is urban. (California Department of Finance, Demographic Research Unit, 2000).

Employment

Unemployment rates in the counties are:

County	Unemployment rate in March 2000 (not adjusted)
San Diego	2.7%
Orange	2.4%
Los Angeles	5.3%

Source: California Employment Development Department 2000

3.5.7.2 Socioeconomic Impacts

There would be no impact on permanent populations. Local employment opportunities would increase temporarily during construction. Not only would skilled construction workers be sought in the local labor markets, but also short-term employment would be available for traffic control, monitors, and inspectors. There would be temporary increases in demand for service-related industries such as hotels, motels, restaurants, etc., while the construction crews were working in an area. This would have no overall effect on employment rates within the three counties.

3.5.7.3 Environmental Justice

Environmental justice has been addressed in accordance with Executive Order 12898. Effects on minorities and Native Americans were considered in this project. All aboveground facilities are located on parcels purchased or leased from willing sellers. Implementation of the project would result in no disproportionate effects to minorities or Native Americans.

3.5.8 Water Resources – Link Five

3.5.8.1 Affected Environment

The project route lies primarily in semi-arid conditions, with annual precipitation for the 1999 water year 7.83 inches near downtown San Diego to 9.08 inches in downtown Los Angeles. Rainfall around San Diego occurs primarily from November through February while in Los Angeles, February through April is the heaviest rain season. Throughout the route, precipitation is variable within any given year and from year to year.

Surface water resources crossed by Link Five are found in Appendix K-2. Based on a construction corridor width of 25 feet, the project would temporarily impact approximately 0.07 acres of waters of the US. Construction activities would temporarily affect these areas, and no waters of the U.S. would be filled.

3.5.8.2 Impacts on Water Resources

Ground and Surface Water

Where the project route ROW crosses wet surface water resources, the conduits would be installed with directional boring. Bentonite, a naturally occurring clay compound, is used during boring operations to lubricate the bore, seal the borehole, and help remove cuttings from the borehole. Although unlikely, the bentonite/water mixture can seep to the surface within a stream channel if bores encounter fractures in the underlying rock and bentonite pressures are great enough to allow the material to surface. Bentonite is not a toxic substance, but if released into a waterway it can cause turbidity levels to increase temporarily. Aquatic and terrestrial wildlife exposures to bentonite, if a fracture is encountered, are expected to be short-lived. No significant impacts are expected from the infrequent but unpredictable bentonite escape.

With implementation of the SWPPP, the potential for sediment contamination of watercourses is minimized.

3.5.9 Air Quality and Noise – Link Five

3.5.9.1 Affected Environment

Air Quality

The proposed project has the potential to affect two regional air basins, the San Diego County and South Coast air basins. The pollutants of greatest concern along the pipeline route are CO, ozone, and PM₁₀. The proposed project would travel through areas that are in state/federal nonattainment for certain air pollutants. The following table illustrates the air quality status along the route.

Federal and State Area Designations (California Air Resources Board, 1999)

District	CO	Ozone	PM ₁₀
San Diego County	State: Attainment	State: Nonattainment	State: Nonattainment
AQMD	Federal: Unclass/Attainment	Federal: Nonattainment	Federal: Unclassified
South Coast AQMD	State: Attainment (south), Nonattainment (north)	State: Nonattainment	State: Nonattainment
	Federal: Nonattainment	Federal: Nonattainment	Federal: Nonattainment

Noise

The proposed route would be located within various city and county streets and roads. The route as a whole is subject to substantial vehicular traffic, but only minor amounts of commercial truck traffic. Ambient noise levels along the urban areas of the route are relatively high and similar to typical urban settings. In the more rural areas, ambient noise levels are lower than in urban areas.

3.5.9.2 Impacts on Air Quality and Noise

Air Quality

During on-ROW construction activities, the project would result in emission of CO, ozone precursors, and PM₁₀ from equipment exhaust and fugitive dust releases. However, project-related emissions are not expected to exceed district-specific conformity thresholds. Construction activities would be temporary in nature and fugitive dust releases would be minimized by standard dust control mitigation measures to be implemented by the project. The following mitigation measures would be implemented to reduce the potential impacts from CO, ozone, and particulate matter:

- Use low-emission construction equipment and/or reformulated fuel
- Water construction areas, as needed to minimize visible dust emissions
- Reestablish ground cover on construction site consistent with requirements of the SWPPPs
- Maintain truck and equipment engine in good running condition
- Clean equipment daily, or as needed, to reduce tracking of soil onto adjacent roads

All Op Amp facilities meet local permitting requirements for Air Quality.

Noise

Construction-related noise would briefly exceed ambient noise levels (defined as the usual vehicular traffic noise on the roads along the route). Most of the installation along this route would be accomplished by plowing. Since average speed of installation is 0.5 mile per day, noise impacts would occur on only one day in most areas. The noisiest type of installation is rock sawing or trenching through rock. Since it is also the slowest installation method, it is expected that noise impact from rock work to last up to three days for any given area. No noise associated with the operation or maintenance of fiber optic cables exceeds ambient noise levels.

There is the potential for minor, short-term noise impacts during power outages from the operation of the backup diesel generators at the Op Amp facilities. The measured sound performance for the backup generators averages 91-92 dB(A) at seven meters in unhooded conditions (Cummins data sheet 1994). Noise levels would be reduced by enclosure and additional soundproofing to meet local zoning requirements.

3.5.10 Human Health and Safety – Link Five

3.5.10.1 Affected Environment

There are no known hazardous material sites located along the proposed conduit route or in the vicinity of the Op Amp stations. However, there is still the potential for the presence of hazardous materials along the route resulting from accidental spills or migration from adjacent properties. Hazardous materials used in fiber optic cable installation and ancillary facility construction are those routinely associated with the operation and maintenance of heavy construction equipment or other support vehicles, including gasoline, diesel fuels, and hydraulic fluids. All waste generated by the project would be removed from the project area and disposed of at appropriate disposal sites, licensed to receive the waste. For Camp Pendleton, the disposal areas would be off-Base.

Safety concerns may be raised when construction personnel are working in the road ROW and are exposed to street traffic.

3.5.10.2 Impacts on Human Health and Safety

Hazardous Materials

Appendix C contains measures detailing response to other hazardous materials discovered unexpectedly during construction. This plan also details control measures to limit or eliminate human health or safety impacts during refueling and servicing of construction equipment and the Op Amp facilities. Implementation of these measures would reduce potential impacts to insignificant.

Traffic

A traffic control plan would be adopted for the project that details standard traffic control and flagging measures to be implemented around construction sites. Adherence to the plan would minimize any potential

impacts vehicular accidents in construction zones and also reduce the impact of construction to the traveling public by eliminating or greatly reducing safety concerns. Implementation of these measures would reduce potential impacts to insignificance.

3.6 UTILITY CORRIDOR ALTERNATIVES EXAMINED THROUGH CALIFORNIA DESERT CONSERVATION AREA

An alternative this EA must consider is that AT&T use existing corridors, as designated in the CDP for its entire route across public land in California. Preliminary analysis demonstrate that the utility corridor alternative that could potentially meet project purposes would result in far greater environmental impact than the proposed roadside build.

The most direct route using one of the CDP corridors west from Blythe would follow the K corridor along I-10 toward Los Angeles. Under this scenario, the system would provide linkage with San Diego on a “spur,” compromising the function and reliability of the system and quality of service for San Diego and the coastal cities. In addition, AT&T’s existing network already connects between Blythe and Los Angeles. A critical component of this project is to increase system reliability and diversity. As proposed, the project completes a continuous ring between Blythe, San Diego, and Los Angeles, thereby adding both capacity and physical diversity to the existing system. Once completed, a failure on one leg can be instantly compensated for without loss of service. For these reasons the K corridor did not meet the project need.

The corridor route from Blythe to San Diego would require following corridors J, L, and N. Compared with roadside construction along well-traveled highways, the corridor alternative would result in far larger environmental impact. First, it is 33 miles longer, thus impacting an additional 176 acres of desert habitat. Second, the impacts are far greater than the roadside build. The desert habitat that would be impacted is isolated from daily traffic or other disturbances and is prime habitat. Corridor J was designated adjacent to high-voltage transmission lines, which were in place at the time of designation. These overhead lines passed over rugged terrain with minor changes in the alignment, while ground alignments must match topography in order to minimize erosion potential, minimize visual contrast, and provide passable access for equipment. The environmental impact of fiber installation along those corridors would be much greater than a roadside construction project.

Following Corridor J would require 15 miles (80 acres of impact) of new construction where there are no roads where Corridor J serves as the dividing line between two parts of the Palo Verde Wilderness area. Topography is much steeper than the roadside build and would require construction across steep gradients. Impact to the environment of this section would be much greater than for the roadside build due not only to new construction, but also to the need to build new access roads.

If the project followed Corridor J south of highway 78, an additional 10 miles (53 acres) of cross-country construction would be required before a powerline access road would be encountered. This cross-country construction would also require new access roads, providing potential routes for off-highway vehicle (OHV) traffic into previously undisturbed areas. By following Corridor J and connecting with Corridor L, the project would pass within two miles of Pilot Knob, an area of major cultural concern for local Native Americans.

Following Corridor L would require passing adjacent to two Areas of Critical Environmental Concern, both with significant cultural values. In addition, there would be another section of required cross-country construction (4 miles, or 21 acres) with additional need for new access roads and much greater impact on the environment than roadside builds adjacent to highways 78 and 80.

The all-corridor route would be 33 miles longer, create a much larger disturbance (approximately 176 acres including access roads), and would impact more habitat than the proposed action. A preliminary analysis of the required cross-country portions clearly demonstrated that this alternative would have far greater environmental impact than a roadside build.

3.7 CUMULATIVE EFFECTS

The installation of conduits and fiber optic lines is characterized by a narrow and mostly temporary disturbance extending for hundreds of miles. Resource impacts for construction and maintenance are typically brief and minor. The proposed route follows previously disturbed ROW including roads, highways, and other telecommunication infrastructure. Property ownership is often mixed with long stretches of private or non-federal lands throughout.

In analyzing cumulative impacts it was found that for some resources the accumulation of data to characterize resources is often constrained by the property ownership crossed by the route and the narrow area of impact. Although the federal government as part of the federal undertaking analyzes the total project, data collection is often confined to the proposed ROW for much of the route, limiting the ability to fully characterize the resources encountered.

Cumulative effects are examined in the context of both urban and rural settings. For the purpose of this assessment, urban impacts are described first and discussed for all urban environments crossed by the proposed project, followed by rural environments.

3.7.1 Urban Setting

Examination of urban environments reveals few cumulative impacts to many resources, particularly natural resources, with a few important exceptions. Current telecommunication activity has had or is having a measurable impact on land use, transportation, and socioeconomics as well as city and county public works. Construction activities are reported to affect selected areas regularly resulting in the need to temporarily change circulation patterns and coordinate city resources to respond to construction impacts. Although impacts do occur to measurable levels in urban settings it is also noted that changes in urban infrastructure, although inconvenient, are commonplace and are a part of the normal urban environment. City and county governments are specifically equipped to ensure that impacts are reduced and mitigated to acceptable levels. Routes proposed in urban settings throughout the project area have been routinely modified by cities and counties exercising their authority to minimize cumulative impacts on existing land uses, transportation, and socioeconomic resources.

In summary, cumulative impacts on the urban environment would contribute incrementally and sometimes substantially to the amount of construction activity experienced in specific areas. However, these impacts are, (1) consistent with the infrastructure improvements demanded by urban occupants; (2) regulated by city and county staff to minimize impacts during construction; and (3) similar to the scale of other urban improvements. Therefore, cumulative impacts in urban environments would not be significant.

3.7.2 Rural Setting

In rural areas impacts are summarized for only the affected resources. Cumulative analysis in the rural environment considered impacts for the following:

- Impacts created by present and reasonably foreseeable future activities within the affected environment of the project.
- Aggregate impacts created by the project because of its length.
- Combined impacts created by recent telecommunication installation projects.

Construction of this fiber optic telecommunications project would occur at an average rate of 1,200 feet per day (365 meters). Where installation occurs in the road shoulder, traffic would not be restricted or detoured. Thus, routine traffic noise and air pollution is the background against which this project would operate.

Much of the rural portion of this project is composed of open rangeland where the current land use activities are cattle ranching, agricultural crop production, and mining. These activities are dispersed throughout the vastness of the project area, but can add incremental amounts to the noise and air pollution of the project area. Conservation areas set aside for protection of natural resources are encountered throughout the project. In New

Mexico, the route passes through the Guadalupe Mountains National Park, and in California passes through the California Desert Conservation Area and the Cibola NWR. Activities associated with these sites are related to protection and conservation as well as recreational activities.

The Campo and La Posta tribal lands also are crossed within the state of California. The land uses within these areas are similar in nature as to the rangelands with which they are associated.

Off road vehicle use occurs throughout much of the project route with an important area of concentration occurring at the Imperial Sand Dunes ORV Area in California. Off road vehicle use is highest at this location during the winter months. Another recreational activity also peaking during the winter months is the annual gathering of campers, trailers, and other recreational vehicles at Quartzite, Arizona. All of these activities contribute to noise and air pollution to the surrounding environment.

On Camp Pendleton, heavy tank maneuvers occur at least weekly within a few feet of Old Highway 1 (El Camino Real) and Stuart Mesa Road roads. Conduit would be installed in or along these roads. In addition, there are daily helicopter overflights and hovering maneuvers nearby in this area. For 156 miles of the route in California, the installation would occur within the pavement of city streets and county roads. Under those circumstances progress would be slower and would require traffic detours, thus reducing background traffic noise at the construction site.

In addition to routine traffic noise, off road vehicle use and military maneuvers, periodic maintenance and repair of road surfaces and shoulders are activities similar in duration and disturbance to fiber optic system installation, and occurs once a year or less frequently along all roads and streets followed by this project.

Other utilities have been or would be installed along road shoulders or within street pavement and the ROW, including electrical power, copper telephone cable, water, gas, and sewer lines. A current proposal is to install a natural gas transmission pipeline going from Ehrenberg, California heading Southwesterly along Hwy 78 and Interstate 8 into El Centro and then on to Mexico. Installation and maintenance of other fiber optic systems as well as other utilities are activities similar to this proposed project that take place in the same area with similar equipment and impacts.

Throughout New Mexico and Arizona the route is within previously disturbed AT&T ROW. Given the incorporated mitigation measures, including weed control, the incremental cumulative direct impact of this project on vegetation and wildlife is negligible.

A cultural resources file search and an inventory of the proposed AT&T route encountered a total of 285 sites within the ROW and APE. Of the 285 sites, almost 200 have one or more components recommended as eligible or potentially eligible for inclusion in the NRHP. As mentioned previously, the ability to characterize the cumulative effects to cultural resources are severely constrained by the narrow APE sampled for the route. The context and extent of cultural resources can only be estimated on private lands.

Cultural resources within the APE have been subjected to impacts during installation, maintenance and operation of the existing facilities within the ROW. For these ROWs it would include road and telecommunication infrastructure use, repairs, and installation. Pressure on sites within the ROW would continue through construction and into maintenance and operation. Surface disturbance of the sites has already occurred for the majority of the ROW and is unlikely to cease if the project was never built.

Direct cumulative effects to cultural resources are minimized through the use of the resource protective measures, and treatment plans approved by the BLM, SHPOs and other reviewing and authorizing parties. It is expected that understanding of the existing resources will improve and protective measures can be appropriately applied to resources in perpetuity.

Within the given visual context, any additional visual elements on the landscape that would result from this project would be visually subordinate to the existing landscape character and would contribute only incrementally to the overall visual conditions of the surrounding landscape.

Indirect Impacts

Activities from this project would add a small increment to the noise and the air pollution already created by routine traffic and the other activities mentioned above. While the surrounding land uses vary from intensely urban to unpopulated, none of the Op Amp facilities would contribute more than a tiny fraction of the total air pollution or noise in any area. Therefore, the cumulative impacts of Op Amp facility operation and maintenance are negligible.

Aggregate Impacts would occur if the project, which because of its size, produced more impact than the sum of its parts. Because of the length of the project the potential for aggregate impacts must be examined. However, no examples of aggregate impacts were identified.

This fiber optic system is one of several that have used or are proposing to use road shoulders and ROWs for installation. Within portions of New Mexico and Arizona similar linear projects by Williams, Level 3, 360networks, El Paso Energy, and Valley Telephone run near or adjacent to the proposed project. Along parts of the route in California there are one or two systems already installed, and at least one other company, Level 3, is proposing to use an identical alignment from Santee to Ocotillo in San Diego and Imperial counties.

There are as many as five major multi-state telecommunication projects currently planned or underway in the southwest region of the United States. Each of the telecommunication carriers has a strategy for expanding the planned system to respond to future market opportunities. Like the AT&T project, each of the projects uses existing pre-disturbed roadways, pipelines, railroads, and existing cable routes. Impacts for these routes are typically low and disturbance during construction and operation are also low. It is therefore expected that direct and indirect cumulative impacts resulting from the combined telecommunication activity would be low.